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SPECIAL EDITION

CYCLE GUIDE

SPECIAL EDITION:

Saddlebag Buyer's Guide

FULL-TILT TESTS!

Honda CR450R Pro-Link
KZ440, GS450

HOT KAWASAKI KZ1000

Born-again Z-1: Riding an 11.6-second desert whirlwind

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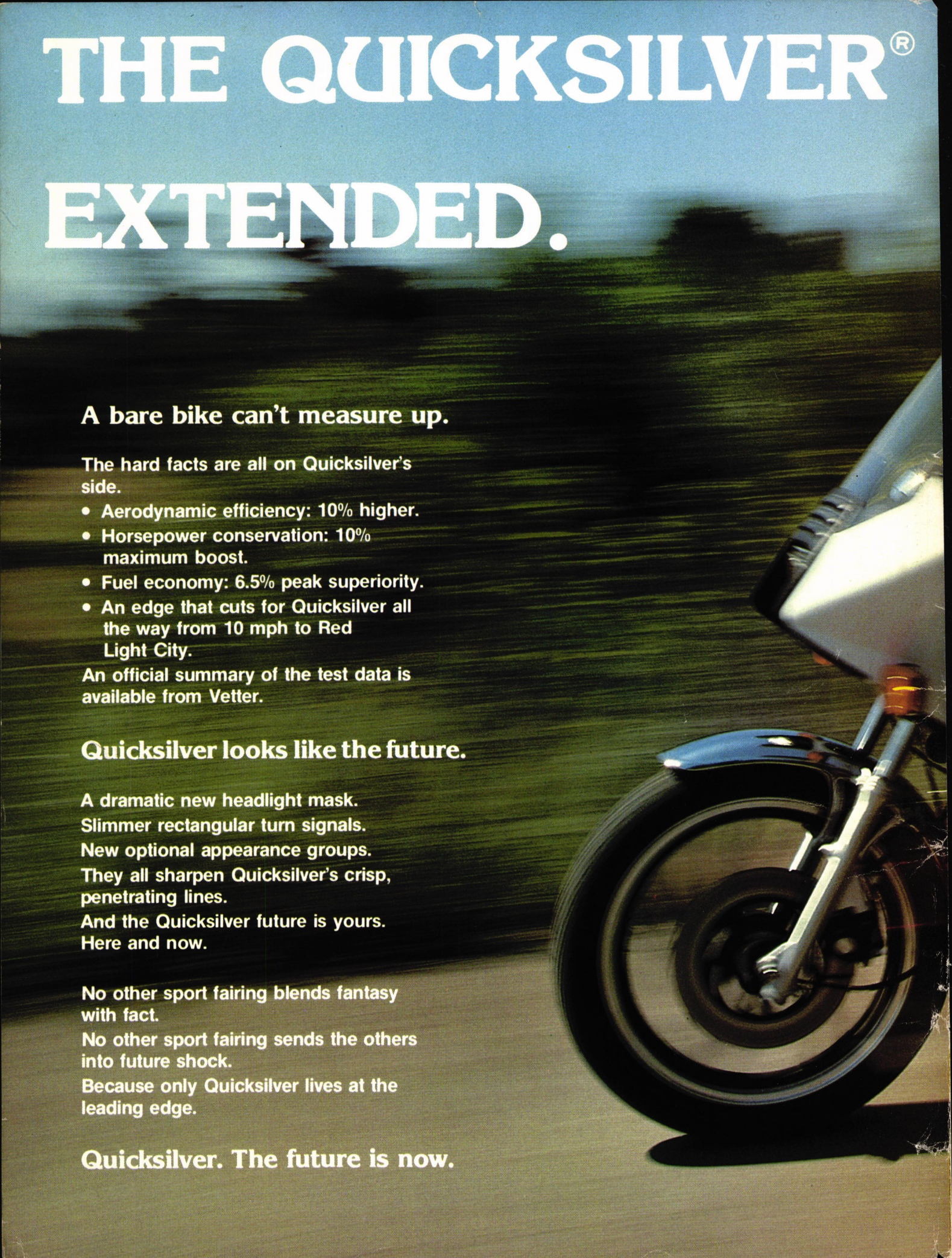

A bare bike can't measure up.

The hard facts are all on Quicksilver's side.

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- Horsepower conservation: 10% maximum boost.
- Fuel economy: 6.5% peak superiority.
- An edge that cuts for Quicksilver all the way from 10 mph to Red Light City.

An official summary of the test data is available from Vetter.

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And the Quicksilver future is yours. Here and now.

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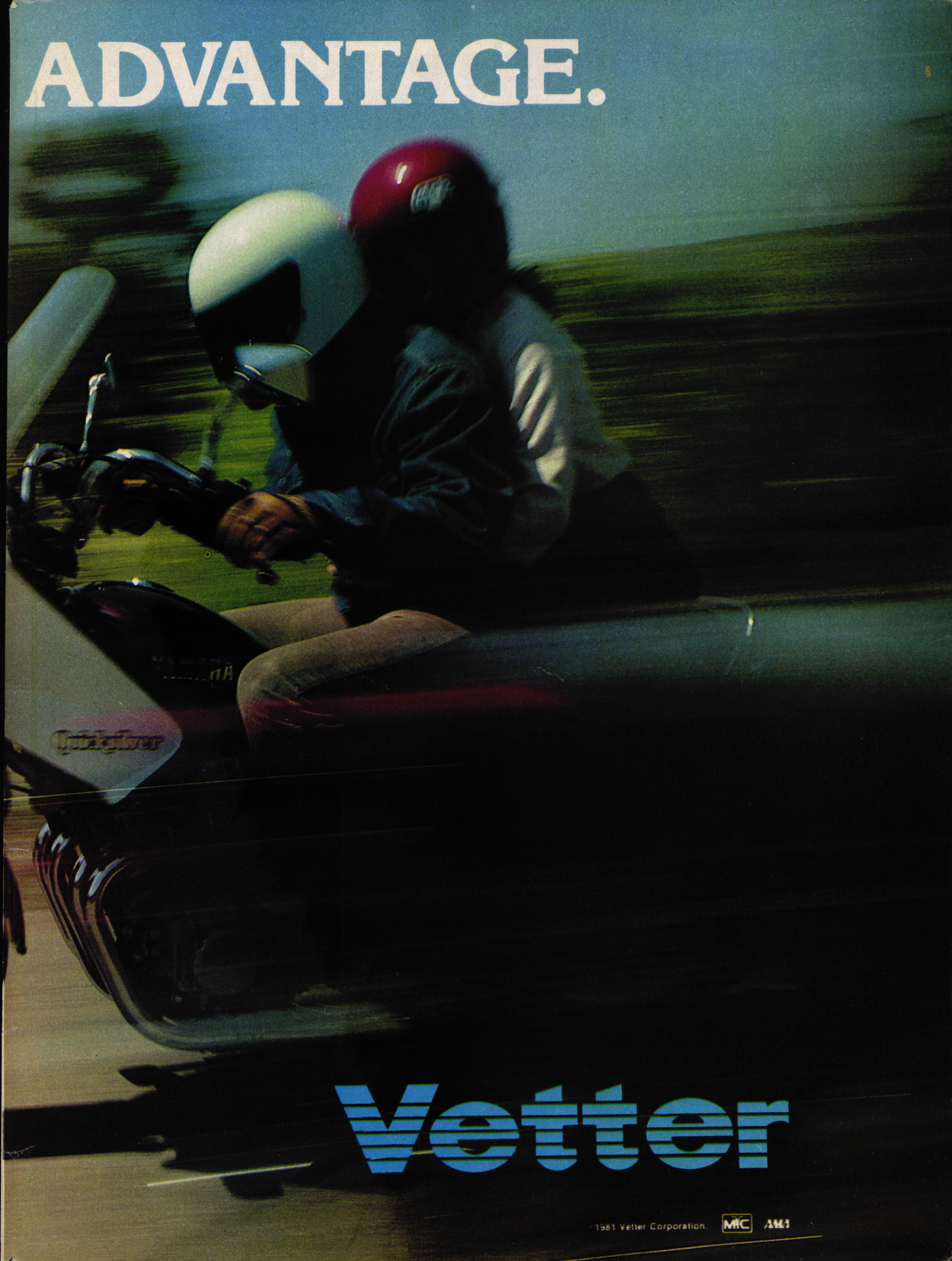
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Almost every cycle luggage system is a compromise. But this one isn't.

The Set-Up®. It gives you everything you need to make your ride a dream tour.

You get Saddlebags with 3600 cubic inches of capacity. A Tail Trunk® with 2800 cubic inches more, plus a built-in back rest. Compact on the outside, an incredible 100,000cc's on the inside.

And it all rides on the exclusive Floating Mount System. A precisely engineered amount of flex dissipates weight shifts and vibrations before they reach you and your machine. So you ride smooth and undisturbed. The rigid-mount dead-weight kits just can't match it.

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You get the durability that Vetter's proved through more than a decade of American touring experience.

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Capacity. Handling. Convenience. Aerodynamic efficiency. Durability. Style.

The choice is yours. A compromise. Or The Set-Up. For the demanding rider, the choice is obvious.

THE SET-UP

by Vetter

1981 Vetter Corporation

Contents

VOL. 15 NO. 2 FEBRUARY 1981

SPECIAL EDITION: SADDLEBAGS FOR SALE

95 TIPS FOR ALL BUYERS *sorting through the specifications*

99 BAGS FOR ALL REASONS *leather bags, detachable suitcases, color-matched luggage, touring trunks*

BORN-AGAIN Z-1

41 KAWASAKI KZ1000 *thinking man's literbike*—**by Michael Jordan**

43 FLAT-OUT ON THE FLATS *speed thrills*—**by Dain Gingerelli**

45 VINTAGE HORSEPOWER *the motor remembers*—**by Michael Jordan**

TESTS

60 IMPROVING THE RD350LC *better than stock*—**by David Dewhurst**

70 MINITEST: SUZUKI GS450S *Euro-style, U.S. carburetion*—**by Riley Tharp**

72 KAWASAKI KZ440 *the perfect home companion*—**by Larry Works**

74 THE BELT-DRIVE FUTURE *driveline styling*—**by Don Fuller**

78 HONDA CR450R *are you serious enough?*—**by David Dewhurst**

80 THE PRO-LINK STORY *Roger De Coster tells it*—**by Paul Dean**

FEATURES

50 NORTON COMMANDO PRODUCTION RACER *the story behind the ultimate British Twin*—**by Steve Thompson**

88 MAKING THE GRADE AT THE DMV *can you qualify for a motorcycle license?*—**by Merry MacTavish**

PRODUCT EVALUATION

62 THURLOW COLD WEATHER GLOVES *toasty*—**by Dain Gingerelli**

GUIDE LINES

19 COMING SOON *checking out the 1981 Kawasakis*

36 RUMORS *is that a 16-valve GS550 you're riding?*

SPORT LINES

111 SIX-DAY SAGA *doing the ISDT or not*

121 WINNERS & LOSERS *dragstrip secrets*

COLUMNS & DEPTS

6 CYCLE GUIDE'S CYCLE GUIDE

8 EDITORIAL

10 LETTERS

14 WEST'S SIDE

18 TECHSPEAK

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COVER:
Chris Eastman wrapped his stubby, frostbitten fingers around his Nikon to shoot this portrait of the new Z-1 on El Mirage Dry Lake at dawn.

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QUOTE:
"Riding a Z-1 for the first time is like losing your virginity, going into combat and tasting your first beer all in about seven seconds." **pg 41**

CYCLE GUIDE'S CYCLE GUIDE

OFF-ROAD

MAKE & MODEL	ISSUE	ENGINE TYPE	WHEEL TRAVEL, IN. FRONT/REAR	WEIGHT, LBS	HORSEPOWER@RPM*		GEARS
Can-Am 250 MX-5	Jan. '79	Two-str.	10.8/10.0	218	32.1	8500	5
Can-Am 250 Qualifier III	Feb. '80	Two-str.	9.7/9.8	230	25.2	8000	6
Cam-Am 400 MX-6	June '80	Two-str.	11.5/10.8	233	38.3	6500	5
Honda CR125R	Jan. '80	Two-str.	11.5/10.8	202	20.8	10500	6
Honda CR250R	May '80	Two-str.	11.8/11.0	222	27.5	7000	5
Honda XL185	March '79	Four-str.	7.4/6.75	239	11.2	7500	5
Honda XR185	March '79	Four-str.	8.0/7.75	221	12.8	10000	6
Honda XR500	May '79	Four-str.	8.5/8.6	273	25.8	6500	5
Husqvarna 125CR-'80	Nov. '79	Two-str.	11.8/11.8	214	18.8	11000	6
Husqvarna 250CR	Dec. '78	Two-str.	11.8/11.8	227	24.3	8500	6
Husqvarna 250WR	Aug. '79	Two-str.	9.5/9.5	238	21.9	6500	6
Husqvarna 420AXC	Oct. '80	Two-str.	11.5/11.9	239	NA	NA	4
Kawasaki KLX250	Sept. '79	Four-str.	9.8/10.5	239	15.2	8500	5
Kawasaki KX125 A7	Jan. '81	Two-str.	10.4/11.3	207	20.9	12000	6
Kawasaki KX250	Sept. '80	Two-str.	11.3/11.2	233	26.8	8000	5
Kawasaki KX420	July '80	Two-str.	11.0/11.3	250	34.0	7000	5
Maico 400 MI	April '80	Two-str.	12.3/12.0	233	35.5	7000	5
Maico 450 MI	April '80	Two-str.	12.3/12.0	236	37.0	7000	5
Montesa Cappra 414 VE	Oct. '79	Two-str.	10.9/10.7	236	28.5	6500	4
Suzuki PE175	Aug. '78	Two-str.	8.8/9.4	216	11.2	9000	6
Suzuki PE400	Nov. '80	Two-str.	11.3/11.3	250	30.9	7000	5
Suzuki RM125T	Dec. '79	Two-str.	11.2/11.7	200	19.8	10500	6
Suzuki RM250N	May '79	Two-str.	11.2/11.8	218	27.1	8000	5
Suzuki RM400N	Sept. '79	Two-str.	11.2/11.8	229	28.1	7500	5
Kawasaki KDX175	Dec. '80	Two-str.	9.6/9.8	222	15.3	8500	6
Yamaha Pro-Tec 600	Nov. '79	Four-str.	10.5/10.1	262	46.2	6500	5
Yamaha IT250G	Dec. '79	Two-str.	9.8/9.8	244	27.7	8000	6
Yamaha TT250G	Aug. '80	Four-str.	8.8/7.5	242	17.7	8000	5
Yamaha YZ250G	March '80	Two-str.	11.2/11.6	217	29.6	8000	6
Yamaha YZ465G	July '80	Two-str.	11.2/11.8	228	39.4	7000	5

*Horsepower shown is taken at the rear wheel and does not account for transmission losses between the engine and rear wheel. These results may differ from manufacturer's claims or from results obtained using a different dynamometer.

STREET

MAKE & MODEL	ISSUE	ENGINE TYPE*	QUARTER-MILE, SEC./MPH	TOP SPEED, MPH	WEIGHT, LBS	FUEL CONSUMPTION, MPG	STOPPING DISTANCE FROM 60 MPH, FT.
BMW R100T (Dressed)	Aug. '79	2C/G	13.81/92.9	119	521	38-53	142
Ducati Darmah	Sept. '78	90-deg. 2D/F	13.41/97.5	118	487	25-40	120
Dunstall-Suzuki GS1000 CS	July '79	4A/F	11.32/117.0	154	488	37-.5	124
H-D CLE Sidecar	Sept. '79	45-deg. 2D/F	17.60/69.3	91	1036	25-35	181
H-D Tour Glide	Sept. '80	45-deg. 2D/F	15.58/83.9	108	785	35-44	223
Honda CB400T Hawk	March '80	2A/F	14.37/88.6	100	391	51-65	139
Honda CX500 Custom	Aug. '79	80-deg. 2E/G	14.12/92.9	102	468	44-51	146
Honda CB650	Feb. '79	4A/F	13.29/99.9	113	447	37-51	131
Honda CB650 Custom	Dec. '79	4A/F	13.10/99.8	113	447	44-52	131
Honda CB750F	Oct. '79	4A/F	12.41/106.8	128	524	31-52	135
Honda CB750C	Nov. '80	4A/F	12.68/105.3	128	530	39-46	131
Honda CB900C	June '80	4A/G	12.44/107.9	132	588	37-44	155
Honda Interstate	March '80	4C/G	13.40/96.0	121	718	33-45	146
Honda CBX	Dec. '79	6A/F	11.86/114.5	130	555	19-36	145
Kawasaki KZ550	Sept. '80	4A/F	13.45/97.1	103	426	37-51	150
Kawasaki KZ650 Custom	May '79	4A/F	13.16/100.2	116	483	45-49	125
Kawasaki KZ750	May '80	4A/F	12.50/107.8	127	471	39-50	134
Kawasaki KZ1000	Aug. '80	4A/F	12.12/111.1	130	548	37-45	131
Kawasaki KZ1000 Shaft	Aug. '80	4A/G	12.19/112.2	132	582	32-44	129
Kawasaki Z1-R	April '80	4A/F	12.24/110.6	130	552	35-48	131
Kawasaki KZ1300A GT	Sept. '80	6A/G	12.71/107.4	135	730	31-45	146
Laverda 1200 Jota	Dec. '78	3A/F	12.54/105.0	121	518	29-37	145
R.C. Turbo CB750F	Oct. '80	4A/F	11.99/113.8	NA	523	27-39	135
Suzuki GS450 ST	May '80	2A/F	14.09/92.5	100	397	55-57	127
Suzuki GS750ET	July '80	4A/F	12.62/105.5	122	523	39-55	130
Suzuki GS850N	March '79	4A/G	12.81/104.0	116	566	35-45	153
Suzuki GS1000E	Aug. '80	4A/F	11.98/113.9	136	528	32-50	137
Suzuki GS1000G	Aug. '80	4A/G	12.34/110.8	139	564	30-51	141
Suzuki GS1100ET	April '80	4A/F	11.43/118.3	140	544	37-49	116
Triumph Bonneville Special	July '79	2A/F	13.94/96.2	110	411	45-55	175
Yamaha RD400F	June '79	Two-str. 2A/F	14.16/90.2	98	355	30-43	129
Yamaha RD350LC	Dec. '80	Two-str. 2/AF	13.23/101.0	113	328	NA	126
Yamaha XJ650 Maxim I	June '80	4A/G	12.60/107.4	120	453	40-54	128
Yamaha XJ650	Nov. '80	4A/G	13.19/102.4	125	476	43-44	NA
Yamaha TZ750E	April '79	Two-str. 4A/F	11.62/125.5	180	331	NA	NA
Yamaha XS850LG	Feb. '80	3A/G	13.10/101.7	116	548	42-55	144
Yamaha XS1100LH	Jan. '81	4A/G	11.99/113.5	130	562	41-46	133

*A-Transverse Vertical, B-Vertical, (single-cylinder only), C-Horizontally Opposed, D-Tandem Vee, E-Transverse Vee, /F-Chain Final Drive, /G-Shaft Final Drive, /H-Belt Final Drive

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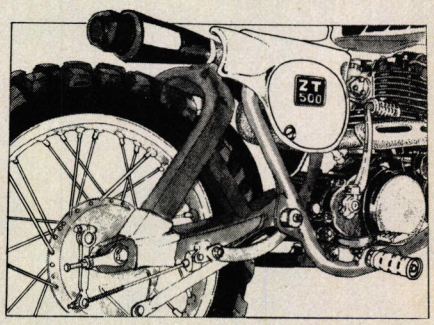

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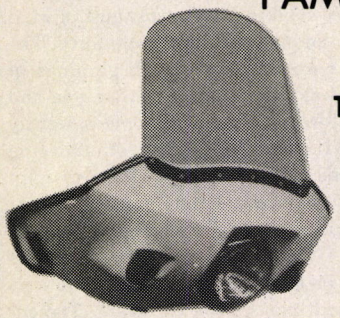

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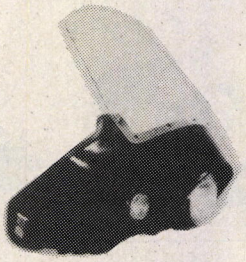

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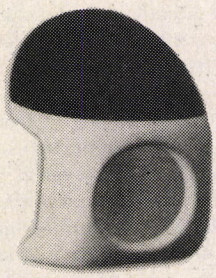

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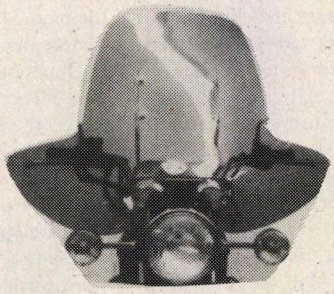

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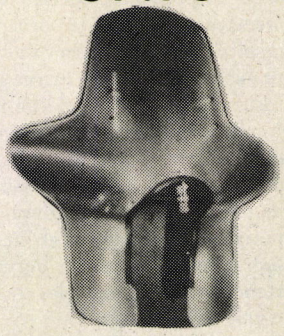

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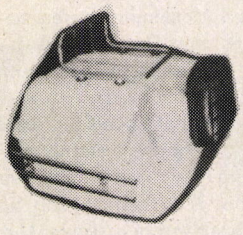

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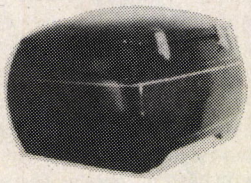

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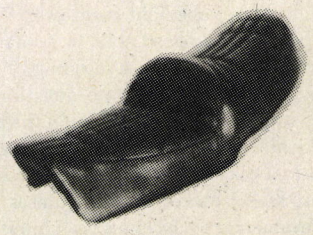

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Editorial

Damn the Ninnies, Full Speed Ahead

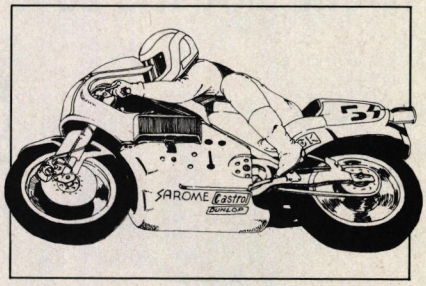
Burying the speedo needle deep into NHTSA's heart

• Those NHTSA ninnies and their 85-mph speedometer be damned, I enjoy making a top-speed run on a motorcycle. My heart pumps up with excitement every time I see the speedometer needle shudder to a stop against the peg at 85-mph. Everything gets better as the tach needle swings toward the red zone and the bike charts that unknown territory on the dark side of the speedometer. And when the bike beneath me cannot push any harder against the wind, I reckon that I've done my duty to the motorcycle and its designers by extending the bike to its theoretical maximum. And the feeling is just sinfully satisfying, that's all.

Now, I'm really not into committing heavy felonious acts. My glee at exceeding the national speed limit—even if it's just on the racetrack—seems to broadcast so clearly on Smokie's frequency that I invariably risk damage to my driver's license. (You know those guys who can attract a black-and-white just by *thinking* about breaking a traffic law? Well, I'm one of them.) Yet even though I maintain a lower profile on the California Highway Patrol's computer printout than just about anybody else around here, I figure it's my civic duty to extend certain motorcycles to their top speed whenever possible.

Unfortunately, it's difficult to get a true Top Speed (observed) when you must deal with downhill grades, traffic and Smokies, but even a flash reading on the dark side of the speedo delivers a portion of information about the bike I'm riding. You see, top speed means a bit more than just another run to daylight for an obedient roadtester. We really believe top speed tells us something about the motorcycles we're riding.

To begin with, there's no question but that a top-speed dash tells you in the clearest possible way how much pure sauce is at hand in a bike that advertises itself as the fastest nickel rocket west of Kansas City. And evaluating such claims is an important function of your basic roadtester. Naturally, there are those born to a strong streak of gullibility who believe that the furthest reaches of any pre-1980 speedometer represents a true and faithful indication of how fast a bike would go if you let it all out. These guys are the kind of people who tell you that their RD400 saw the far side of 120 mph last August on the Cannibal Flats Expressway. But the guy who taught me the roadtesting business, on the other hand, had the skeptical eye of a storekeeper, and he'd max-out every vehicle in a mile of flat-



out running to see if he was receiving a true measure of horsepower in the factory's specifications. Of course, that's why this same guy now holds driver's licenses in three states and why traffic court judges flip to the back of their big books in order to figure out his traffic fines. But you figure that's part of the deal when you start measuring horsepower against the road.

Speed contests can supply more than just information about peak horsepower, though. Take roll-on contests. Match two motorcycles at 60 mph, accelerate simultaneously, and in the two different time-to-speed curves that result you'll discover much about the way a bike's horsepower and gearing work together. Some motorcycles, like the new Z-1, spin so many revs at 60 mph that they leap forward (crisp carburetion plays a role here, too, of course) and accelerate smartly, but then run up against redline too quickly. The result is often a bike that's a rocket in a quarter-mile, but not quite as soothing to ride for long distances as a taller-geared bike like a Suzuki GS1000. A roll-on can also reveal a bulge of mid-range power, as in the XS Eleven, and some reluctance to seek extreme speeds. It can uncover a willingness to rev beyond redline, as in the 1981 Z-1, or a distinct camminess, as in a Honda CB750F. Suddenly the peaks and valleys of every motorcycle's dynomometer curve take on a form that can be felt in the seat of your pants, instead of merely observed intellectually on a chart.

There's more to speed dashes than just over-the-road dyno testing, too. There's another world of chassis dynamics waiting on the other side of the 85-mph peg. Once you bury the needle against its stop, you plummet headlong into an environment that enables you to scrutinize the way in which the bike works together. The tire contact patches feel wispy and tentative as The Ton comes into sight, even though 100 mph is a remarkably mundane figure by motorcycle standards, within reach of even lowly 400cc bikes. Every stray gust of wind buffets the bike with hurricane force. The engine hammers with the beginnings of mechanical indigestion. Together, you and the motorcycle finally become a tightly wrapped comet of energy, thundering across the asphalt.

Every bike feels strung out at its maximum speed, no matter whether it is at 105 mph or 140 mph. Sometimes the bike feels as if it's on the verge of breaking up into its component parts from the strain. The engine begins to belch death smoke and the chassis twitches at every ripple in the road. Some bikes, like the 1981 Z-1, grow stronger the faster they go. The motor's random mechanical noises no longer sound random, while the chassis points toward the horizon with steadfast dedication, as if it were some supersonic aircraft, slow and clumsy in the traffic pattern but suddenly graceful once the sound barrier is crossed.

I guess such top speed tests are the heritage roadtesters receive from test pilots. To us, it seems natural to extend a motorcycle to its limits—even if *you* never have to—in order to explore the dark unknown where even engineering departments fear to tread. In that high speed zone, you find out how honest a motorcycle is, whether it can safely deliver the performance it offers at 130 mph as well as 30 mph. We take the trouble because people like Kawasaki's ace test rider known as "Smiley" shakes prototypes out by running them at top speed up and down the expressway in the mountains behind Akashi. That's why each of us has his favorite straightaway. Setright, for example, prefers to run up to the Evesham Bypass and back, near London. Gingerelli, on the other hand, prefers states without radar.

I'll agree that speed dashes aren't for everybody. They're certainly not for every place. And they're not even for every motorcycle. But I do believe Top Speed (observed) has a way of cutting to the heart of a motorcycle's personality, amplifying its flaws and reinforcing its merits. After all, even sufficient stamina to withstand a top speed run tells me something about a bike.

I guess this fascination with top speed also tells you something about motorcyclists, for there's nothing so pure and universal about the way everyone evaluates his motorcycle than the urge to let the engine off its leash and drive the speedo needle like a stake deep into the NHTSA's synthetic, 85-mph heart. —*Michael Jordan*

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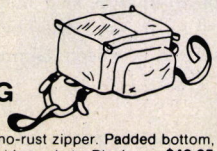

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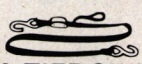

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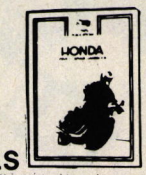

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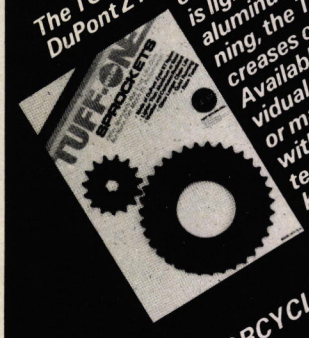
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Letters

Fantasyland, Sage advice, XJ650 keeps keepin' on

MOTO MOVIEOLA

In reference to your article about "Knightriders" (Dec. '80), you have prematurely deemed the film to be pointless, gratuitous and inane. I must protest. Have you seen the movie in its entirety? Have you read the screenplay? "Knightriders" may very possibly be one of the most innovative motorcycle films to come out in years. This flick has a good mix of all necessary elements: humor, romance, great music, dazzling costume and set design, amazing bike stunts, etc. It draws a line between the "roughneck biker" and the "clean cut cyclist," and portrays an ideal motorcyclist as being kind, honorable, fair and even a little overly idealistic. "Knightriders" is a fantasy, but its message and appeal are real. It may rejuvenate interest in motorcycling as well as the ancient honor codes of the round table.

Simon Manses
Coraopolis, Pennsylvania

True. We responded to a gratuitous, inane press release. However, we believe that motorcycles are an end in themselves and not an allegory, and that jousting on bikes is absurd. Hollywood has burned us before—ed.

OPTIQUE CRITIQUE

As a new subscriber I would like to say that I subscribed not only because of your outstanding stories, such as the XJ650 article, but despite your policies. Your typeface is so small that I can hardly read it! You will never see an advertiser print in letters so small that the reader must make an effort to see it. Please, regardless of what others may be doing, let us have a humane typeface size.

Philip D. Mortensen
Mountain View, California

RD350LC REJOINDER

Yes, the RD350LC is a nice wall trophy or toy for European boy-racers and American journalists. And yes, the Seca 550 is supposed to make me forget about my RD400F, but at a much higher cost.

But I do remember my first Yamaha 350, a candy orange 1969 model. I remember dragracing 650 Bonnevilles with it, and winning (sometimes). And yes, I remember vibration, cold winters and having the only two-stroke in town. I remembered so well that last year I bought a Daytona and the real thing was better than the memory: quick, light, good handling, with a simple, rugged two-stroke engine.

So you can talk about your $3000 European bikes with engines that have more parts than the pages in the phone book. I'll keep my simple, lightweight two-stroke, thank you.

Leo Brewer
Sullivan, Missouri

TRIVIAL TESTING

I just took the California motorcycle riding test. I couldn't believe it. The only thing it had to do with real-world riding was that I started from a stop and stopped at the end. Here is the test as I took it: At no more than five mph, and at no time touching a foot to the ground, ride about 20 yards between two parallel lines two feet apart. Turn right into a circle about five yards in diameter and follow it counterclockwise. Exit the circle and go through a six-cone slalom course 20 yards long. Make a U-turn and do the whole thing backwards. That's it. Just the thing for a trials rider.

They didn't want to know if I could shift, signal, ride in traffic, panic stop or any of that basic stuff. I guess they figure that if I can get to the DMV without killing myself, I must know all that. I used to watch out just for motorists, but now I keep my eyes out for fellow cyclists.

Alan Christensen
Corona Del Mar, California

See page 88 for new news about your friends, and ours, at DMV—ed.

THE BEAT GOES ON

"The Right Motorcycle" hit the nail right on the head. So what if the majority likes stepped seats, teardrop tanks and ape bars? I'd jump for joy if the ship with all the L-models, Specials, LTD's and Customs sank! As Mark Twain once said, "When you find yourself on the side of the majority, it's time to reform."

John E. Nelson
Amherst, Massachusetts

Put me down for a yes vote on the XJ650 Eurobike. I had an XS650 Yamaha and I sold it; I had a GS850 Suzuki and I sold it. I do have the first bike I ever bought, a Ducati 860, and even though it continues to be trouble I will not sell it. But I will not buy another bike until the XJ650 comes along.

Dr. Vincent N. Miles
Scottsbluff, Nebraska

Glad to see a test of the Euro XJ650—and as expected it's all one could ask for, and more. I'm impressed, but how does one buy a dream not sold in crypto-chopper U.S.A.?

Greg Grizuk
Newington, Connecticut

The XJ650 could easily lead to a transition from heavy 900cc-plus musclebikes to middleweight, efficient musclebikes—certainly a parallel to the U.S. auto industry. The XJ650 as a sport-tourer is right on target. Serve us cafe!

J.F. Collins
Columbus, Georgia

It's OK with me if you jump on a soapbox for the XJ650 Euro. 'Course all that the rest of us readers can do to analyze said machine is to take your word for it—and drool over the second-best centerfold ever seen. Gimme one!

Sonny W.
Channelview, Texas

Lust, too, is a four-letter word—ed.

This letter is in response to your request for support of your opinions about the U.S. market for "sport" bikes. I swear, if I read one more road test about a bike with pull-back bars, step seat, 16-inch rear wheel, black paint and a 2.2 gallon tank I'll vomit!

I've got a 1973 Guzzi I would trade tomorrow for the XJ650. The only condition is that the bike be the one you reported on. Yamaha, don't change anything. Just ship it to Yamaha South, Belton, Missouri.

Philip Crossland
Mission, Kansas

With reference to the Yamaha XJ650 and your invitation to climb up on the soapbox, please count me in. And if you should by any chance discover a way that we could legally purchase the bike over here, please don't keep the intelligence to yourselves!

J.C. Mathews
St. Petersburg, Florida

We've never been accused of keeping intelligence to ourselves—ed.

CAN'T GET NO SATISFACTION

Cycle Guide, get up on that soapbox and scream. I'm with you. Oh, while you're at it, could you scream for an 1100-type Eurobike also???

John Batchelor
Miami, Florida

I enjoyed the article in your November issue on the Yamaha XJ650 Eurobike. Now, if it was only a 750 and had the European-style cast wheels of the new Yamaha 550 four-cylinder . . .

Joe Wiegand
San Francisco, California

Hear, hear XJ650 Eurobike! P.S. Yamaha, while you're at it, how about a factory turbocharged 650 XJ?

Paul D. Siemens
Aurora, Colorado

'L' IS FOR LUMBAR

Just a short note to tell you that I enjoyed your article on the Yamaha XJ650 Eurobike. Could you ask Yamaha to please start selling them in the United States by this spring? I don't think my back can take another year of riding on my Suzuki 'L' Model.

John M. Connell
North Canton, Ohio

FINAL NOTE

You are hereby requested to add another name to what I assume to be an overgrowing list of prospective owners of the XJ650 Eurobike. Please beg, cajole, badger, make a royal pain, do whatever is necessary to persuade Yamaha U.S.A. to bring that motorcycle to these shores. I've already signed up for the first one to hit. OK. Do your best.

Richard C. Black
Oklahoma City, Oklahoma

We're trying—ed. •

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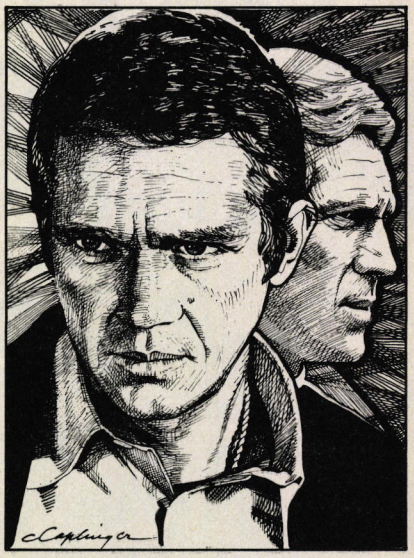
West's Side

McQueen

Flickering images on the silver screen



• A friend of ours died the other day. That's right, a friend of yours and mine. You probably didn't know him personally—I certainly didn't—but still, he was a friend. I'm speaking of Steve McQueen, of course.

I would've *liked* to have known him personally. I even had opportunities. At a World Manufacturer's Championship race at Sebring in the early Seventies when he was co-driving his privately entered Porsche 908-3 with Peter Revson and, with his leg in a cast, managed to finish second overall against the most powerful factory endurance racing teams in the world, I'd stood 10 feet away from him for hours at a time while Revson was in the car. I was close enough to talk to him, had all the right press credentials. But there was something about Steve McQueen, that impassive, stoic staring, that made me hold back, leave him alone. I didn't get to know him any better than you did. I think he wanted it that way.

Now it will stay that way. Cancer got him at last. God knows, enough other things had tried, and he'd given them all a fair shot. Which was exactly why I'd like to have known him. He made me curious.

See, a man in Steve McQueen's position, rich, famous, constrained by movie studio contracts and insurance policies, usually lives the life of a marionette, dangling from strings pulled by professional puppeteers who stand to profit from the herky-jerky glint and shimmer of their puppet. Steve McQueen was one of the first modern superstars to defy the puppeteers. He wanted to go racing, people get killed going racing, he was told he couldn't be *allowed* to go racing, and he goddamn went racing anyway. Scroom! He not only went racing, but proved, among other things, that if he'd gone racing earlier—say, in his early twenties—he would very probably have been a world-class driving talent. Even starting in his late thirties, he was one of the best amateur drivers in the world, absolutely one of the best, and I claim the right to say that because I covered auto racing for 12 years and saw him arrive. And leave.

But that's car racing. Bikers don't care about car racing.

Fair enough, it changes nothing. Because aside from his skill in cars, there was something about McQueen that hit the biker's nerve in me even harder. Sure, he liked cars. He liked planes, too. But underneath it all, behind the car chases in "Bullitt" and the movies about Le Mans, there still exists this one magical image of him. It was a moment in a terrific John Sturges movie, "The Great Escape." If you remember it, I bet you noticed the moment just like I did.

In "The Great Escape" McQueen plays one of several guys escaping from a Nazi prison camp, but he happens to be the one who commandeers a *Wehrmacht* motorcycle for his getaway. And of course, it's McQueen himself doing the riding. No helmet, no false nose, it's unmistakably McQueen all the while. It caused a minor sensation at the time that he insisted on doing his own motorcycle stunts for the movie, and if you remember them, you know it was gonzo stunt work.

But I'm not talking about the jumps and the crashes, they aren't the moment, the magical moment. It was just a little thing. Nothing more than a detail.

As McQueen continues to elude the chasing Germans, all of us pulling for him, loving every hard-biking second of it, he wonders how much fuel he's got left in his tank. Now the old guys among us will remember this, but there was a time when motorcycles didn't all arrive with built-in hairdryers and on-board Jacuzzis. There was even a time, in the period just after the first Viking raids on Connecticut, when motorcycles didn't have fuel gauges!

And remembering those distant times, us old guys recall how you used to check your fuel when you thought you were low. You didn't just look at the dashboard. You didn't just take off the gas cap and peer down into blackness. No, you did something quite specific, something that, unless you're a desert enduro rider, is almost forgotten today.

That's where McQueen comes in. Sitting astride his (for some Hollywood reason) *Wehrmacht* Triumph in this German country road, Nazis everywhere, he wants to know how much fuel is left in the tank. So he twists off the gas cap, leans forward, jiggles the bike back and forth quickly and listens. The gas sloshes in the tank. Now he knows how much he's got left.

Like I said, it's a tiny moment. Just a single detail.

But in that one moment, you know it once and for all—here is a *biker*. Everything about McQueen's riding so far in the movie proves that he's good, very good, but this moment proves something more. He's *experienced*, a rider who loves riding and has taken the trouble to learn every little trick there is to know about it. Riding bikes was in the marrow of his bones, which is why the bike scenes in "The Great Escape" were so wildly successful. They were real and the man on the bike, Steve McQueen, was real.

(And while we're at it, I'd bet you a month of dinners that when they were shooting those scenes and devising meaningful bits of "business," it was McQueen who thought of cranking off the gas cap and sloshing the tank like that. I'd bet he did it automatically, without thinking, and when they asked what he was doing and he explained, they yelled, "Hey, that's *good*—we'll leave that in!" I've no way of knowing if this is true, but I believe it. I believe it because it feels good to believe it.)

I never got to know Steve McQueen, but like I said, I certainly had the opportunities. See, he struck the biker's nerve in others of us around CYCLE GUIDE too. Steve Thompson, in particular. And last summer, Thomps and I had it all worked out. We'd drop in one afternoon up at Santa Paula Airport, where McQueen kept his hangerfull of restored antique planes and motorcycles, and if we were lucky, it would be one of the afternoons he spent hanging out with his machines. Working on them, riding them, flying them. Alone.

We'd hang out too. We wouldn't let on that we were press—best single way, we'd heard, to get ourselves flung right out the door—but just sort of hang around. Ten-year-olds outside the general store at the end of summer. No money left for Jujubes. But couldn't we just come in and look. . . .

Finally, with a gesture toward the old bikes, he would say, you guys like these things?

We'd say, yeah.

He'd say, come on in.

And we'd talk.

We'd heard from a guy who had done it all exactly that way, that McQueen's attitude was simple. He didn't care who you were,

who he was, how we all looked in the mirror. He didn't care that he made movies, that you made clean windshields at the Exxon station. But if you weren't here to like old motorcycles and old airplanes, you'd best be somewheres else. Period.

So Thompson would walk straight in and do a good job of not caring a damn that this was Steve—*Jeeze Crice*—McQueen. Thomps is good that way. But I'd have trouble, I knew I would.

The problem is . . . well . . . I'm a phony. Being famous impresses sheer hell out of me. Anyone who can exert so much influence over me that I think I know a lot about him—when in fact, I know nothing—amazes me. (And of course that was precisely what Steve McQueen hated about fame—and people like me.) But I'd do my best not to make a big deal out of Steve McQueen just because he was Steve McQueen. And the rest of the time, I'd let Thompson do the talking. It would be great.

We never went up to Santa Paula, Thomps and I. We decided to do it next summer instead. God, how I regret that.

Among other reasons, I regret it because it took Steve McQueen's death for me to finally realize what he'd been to us, all of us, when he was alive. In movies like "The Great Escape" and "On Any Sunday" he did more good for motorcycling, more to dispel the old Bad Biker image—all that dumb, thick-lipped off-Broadway Brando crap left over from "The Wild One"—than any other single individual in the last 30 years. After seeing Steve McQueen on a bike, the American public suddenly found it possible to believe that having a motorcycle between your legs wasn't a Mortal Sin. Solid Citizens no longer had to shrink back in terror every time a CB400 rolled into town for groceries.

Astonishing. The work of a friend.

But more than that, I regret never having met McQueen because I'd missed a guy who, in all the clutter and confusion of make-up men and assistant directors and Klieg lights, had looked up the road at the oncoming Hollywood Germans with that troubled squint in his eye, twisted off his gas cap, and known enough to slosh the gas around in the tank. He'd done it because it was real. He'd done it because he knew enough about bikes to *know* it was real. He'd done it because, whatever else he was—millionaire, movie star, solitary man—above all, Steve McQueen was one of us, a biker.

—*Ted West*

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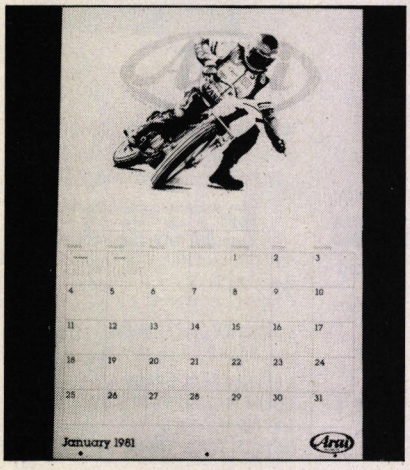
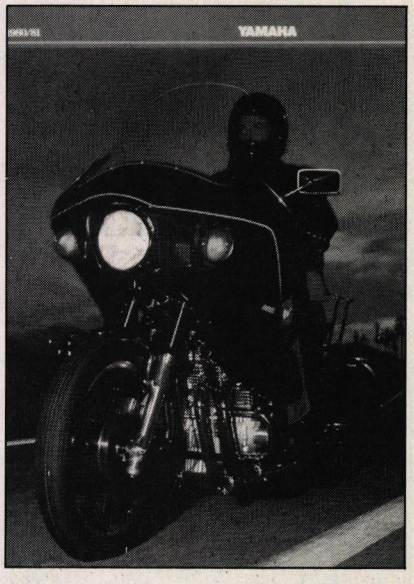
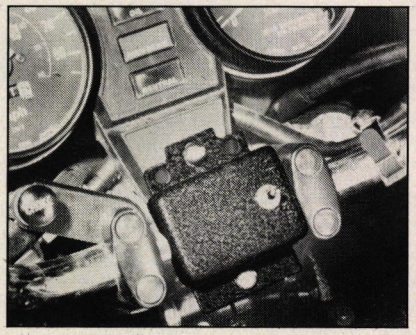
Racing Action Calendar: Here's a good way to count the days until warm weather arrives. The 1981 Arai Racers Calendar features illustrations of motorcycle racers like Mike Baldwin, Freddie Spencer, Wes Cooley, Ted Boody, Graham Noyce and Dale Singleton. There is also plenty of room to write in important race dates or other events. This calendar has something for roadracing, motocross or flattrack fanatics, and you can order one for $4.95 postpaid from Arai Helmets Ltd., P.O. Box 421, Tenafly, New Jersey 07670.

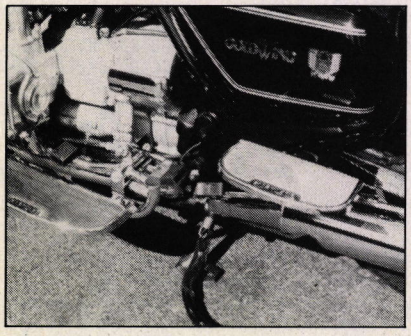




Yamagoodies For 1981: Yamaha has just released a new catalog of accessories and apparel for the 1981 riding season. You can dress up both bike and bod with fairings, racks, bags, jackets, helmets, gloves and more from the 31-page, full-color catalog. To find out more see your local Yamaha dealer or write Yamaha Parts Distributors, P.O. Box 762, Cypress, California 90630.

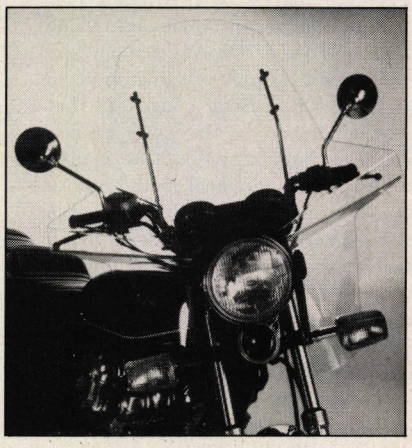
Prestolite Change-O-Light: The new Firefly Headlight Modulator is a soldier in motorcycling's battle to be noticed by other motorists. The unit causes a bike's headlight to pulsate at a rate of four times per second. This, according to Prestolite, makes the rider more visible to oncoming traffic. The Firefly is intended for use only during daylight hours, and it is claimed to be shock resistant, water resistant, and corrosion-proof. It works with all 12-volt negative ground systems and will mount to any motorcycle. A bypass switch is included to return the headlight to its normal function. The Firefly Motorcycle Headlight modulator is available from the Prestolite division of Eltra Corporation, P.O. Box 931, Toledo, Ohio, 43694. Or call (419) 255-4244.





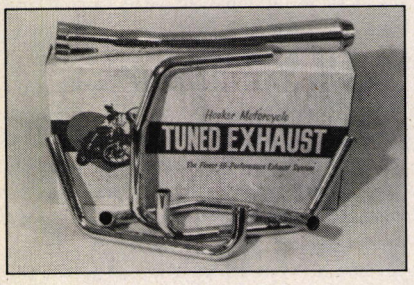
Footboards For Bored Feet: If you have tired toes and aching arches on a long ride then Markland Industries has something for you. The new rider and passenger footboards are made from 12-gauge steel and have a hard chrome finish with non-shrink rubber mats for durability. At $175 you can buy rider floorboard and linkage kits for most popular touring bikes. The new steel floorboards are also available separately to update all early Markland kits. The passenger footboards have a fold-away pivot with an adjustable angle and sell for $55. For additional information see your local dealer or contact Markland Industries Inc., 1501 E. McFadden Avenue, Santa Ana, California 92705. Outside California you can call toll free (800) 854-6747.

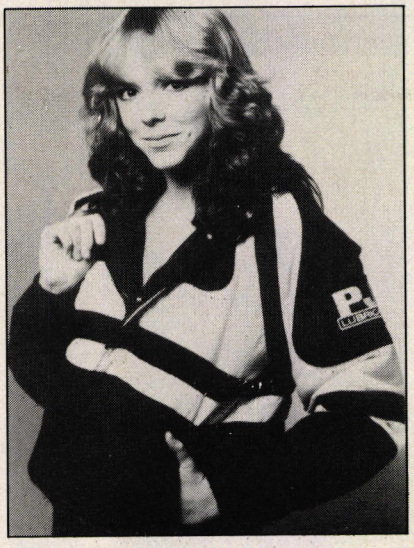
High-Fashion Headgear: If you want to look as good with your helmet on as without it then Quadrifoglio Inc. might have the product you've been searching for. The JEB'S CR/F1 helmet is now available in the U.S., and it features a 120-degree eye-opening with a standard *Lexan* faceshield. In addition, this fiberglass helmet has been given a shape which is claimed to reduce wind lift and drag. The non-Snell-approved helmet has a suggested retail price of $149. Though primarily intended for auto racing, the JEB'S CR/F1 is available for bikers through Quadrifoglio Inc., 6072 N. 16th Street, Phoenix, Arizona 85016. Or call (602) 265-5846.



Clearing The Air: Scott goggles have been helping off-road riders see through the dust for a long time and now the Scott product line is expanding with a clear, acrylic fairing for the street set. Scott claims the new fairing is aerodynamically designed for maximum protection, and the lower extensions help to deflect road hazards. It should do a good job of breaking the blast of winter air or ricocheting raindrops. If this sounds right for your bike, check with your local dealer or contact Scott USA, P.O. Box 1478, Freeport Center, Clearfield, Utah 84016. The phone is (801) 773-2121.

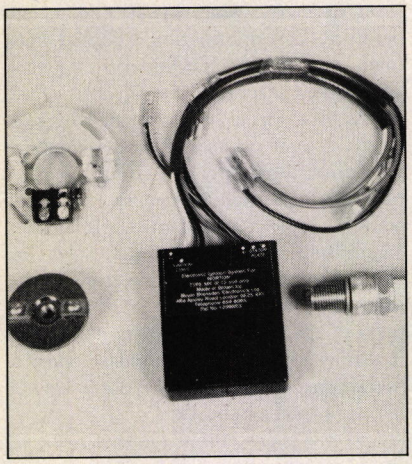
Racing Exhaust From Hooker: Kawasaki owners who like to go *fast* should check out Hooker's high-performance racing exhaust system. This header is a 4-into-1 unit designed to give maximum horsepower to 1973–79 Kawasaki 900s, 1000s, LTDs, MkIIs and Z1-Rs. Hooker made this system for racing purposes only, so street burners better check out the legality in their state. You can get these headers in black (part number 27412) or chrome (part number 27422). All Hooker exhaust systems come with mounting hardware and instructions; sticker aficionados will appreciate the Hooker decal that's included. For more information, see your Hooker dealer or contract Hooker Headers at 1032 West Brooks Street, Dept. CG, P.O. Box 4090, Ontario, California 91761. Or call (714) 983-5871.





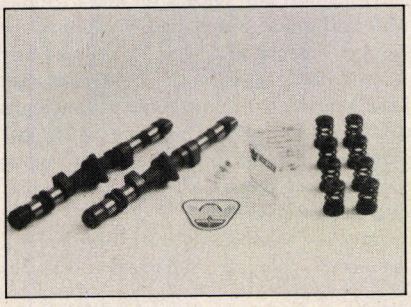
PJ's Jacket: You'll look slick in the latest offering from PJ1. This team jacket is made of nylon with polyester fill. It features an elasticized waist and cuffs, double-front zipper closure, padded mandarin collar, two zippered pockets, one inside pocket and a concealed hood. Black-and-yellow jackets are available in sizes Extra-small through Extra-large and can be purchased at most dealers for $49.50.

Carrera's Goggle: Off- and on-roaders might consider Carrera's 5098-GT goggle for eye protection. It claims excellent peripheral vision for those who enjoy side-seeing, and touts an efficient venting system. A soft, absorbent foam makes this goggle comfortable, and its ribbed construction prevents slippage. Goggles are available in red, white, blue or black and lenses come in goldgreen, polarized, everclear and everclear polarized. For more details contact Carrera International Corp. at 100 Oak Street, Dept. CG, Norwood, New Jersey 07648. Or call (201) 767-9024.



Boyer Ignitions: It's pointless to discuss the advantages of electronic ignitions: Either you like them or you don't. If you do, consider Boyer electronic ignitions for your British twin or triple. The units replace the contact breaker, condenser and mechanical advance unit. And kits also are available for various Japanese or BMW models. For ordering information and a free brochure, contact British Marketing, P.O. Box 219, Dept. CG, San Juan Capistrano, California 92693. Or make it a point to call (714) 493-5252.

From Web-Cam, For Winter: If a motorcyclist finds anything good about winter, perhaps it's the time available for rebuilding. With the holidays over, you might look into camshaft profiles from Web-Cam. These are available for almost every four-stroke motorcycle sold, in a profile to suit your style of riding, from street to roadracing. Web-Cam claims its hardweld or billet cam provides the right amount of cam lift and duration for improved performance. All cams include assembly lube and timing card to insure smooth installation. Heavy-duty valve spring kits also are available from Web-Cam and are recommended for high-rpm engines. For more information, contact Web-Cam, Inc. at 1663 Superior Avenue, Dept. CG, Costa Mesa, California 92627. Or call (714) 631-1770.



Maxima Racing Castor: When it's time for an oil change in your two-cycle engine, ponder the positive side of castor-bean oil. Maxima Racing Castor is degummed so it burns clean and doesn't require solvents or dilutents to cut its purity. Its triglyceride base creates a protective coating on all moving engine parts, and Maxima claims that racing engines using Racing Castor can be built to closer tolerances than those engines using mineral or synthetic oils. Racing Castor mixes with gasoline, alcohol or gasahol fuels, and you'll find it at most dealers.

Techspeak

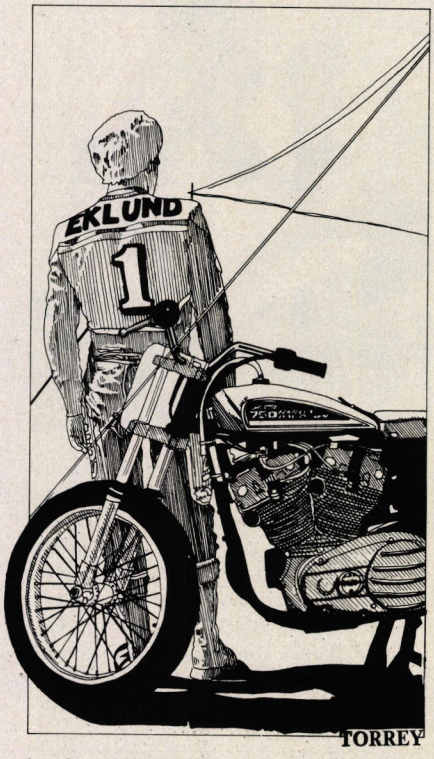
Electronic Fuel Injection

Better riding through combustion chemistry

• Motorcyclists and environmentalists appear, at first, to be diametrically opposed in their views on motorcycle development. EPA demands for clean air and fuel frugality, and our desire for more performance seem mutually exclusive. Engine designers have worked miracles to keep both factions happy. But, as the EPA noose tightens, the engineers are having to develop new technology to maintain that balance.

Fuel injection is the latest advance to keep the scales of emissions and performance evenly balanced. By metering fuel with more precision than even the most sophisticated CV carburetors, injection provides performance gains without increases in emissions and fuel consumption. Car manufacturers, especially in Europe, have been using fuel injection for years, of course. They found that improvements over the carburetor enabled them to meet very strict U.S. emissions standards with little or no loss in performance. Motorcycling, on the other hand, has had no real need for such sophistication. More lenient regulations have called for little more than refinement of the conventional carburetor. But soon motorcycles, too, will move into the fuel injection future. Kawasaki's KZ1000 LTD took motorcycling's first nervous step into the sophisticated world of fuel injection last year. And Honda's CX500 Turbo, plus the new KZ1100 GPz from Kawasaki suggest that those stumbling steps could well turn into a veritable stampede before long.

Technology to make fuel injection possible in motorcycles has only been available for a short time. Mechanically controlled injection systems used on cars are simply too bulky for motorcycle use. Early electronic systems could not be adapted because of destructive motorcycle vibrations. Honda research discovered that such vibrations could accelerate parts of a motorcycle by as much as an amazing 10*g*. You and I only feel that as a mild tingle, because the accelerations and decelerations of vibration last only for a fraction of a second. But if any one of those accelerations were allowed to continue in a single direction, its force would be enough to kill you. Luckily, that never happens, but to the tiny microchips controlling first-generation electronic fuel injection, those tiny vibrations meant instant death. Microchip development in the last couple of years, though, has finally produced circuitry that will withstand the rigors of motorcycle use. So fuel injection has become a viable proposition just when it is needed most.



Fuel injection does not do anything radical. It simply does what carburetors should, but never could do: It meters fuel accurately. Carbs alone can only react to the engine's vacuum and your right wrist. That may have been enough when pollution was nothing more than trash in the streets, but in these air-quality-conscious times, it is not. There are so many aspects of engine performance which must be carefully controlled that the venerable carburetor will soon be incapable of doing its job accurately enough for either the EPA or the high performance freaks.

Fuel injection can be far more accurate because it meters fuel based on far more information from the engine. That's especially true with the electronic injection systems that will appear on bikes. Unlike the carburetor, which simply supplies the correct amount of fuel in relation to any given throttle opening, the injection system can determine if that fuel/air ratio is right for the motor. It can not only sense just what effect the mixture is having on engine performance, it can make an instant adjustment when needed.

The key to electronic fuel injection is a small mini-computer that decides just what is happening to an engine, and what to do about it. Most important of the vast amount of information that current microcomputers are capable of acquiring is the measurement of air flow. Usually, a spring-loaded flap in the inlet tract measures it. The computer also registers throttle butterfly position and, through the pulses of the ignition coil, engine speed. These are the usual measurements taken by the electronic fuel injection's black box in order to get a comprehensive view of an engine's fuel mixing needs.

As far as the EPA is concerned, fuel injection really scores big in the gas-delivery sweepstakes because it can determine the result of its actions upon the engine and then correct itself. Temperature probes in the cylinders and head monitor any small changes, and temperature, of course, plays an important role in determining the level of emissions. Recent advances in injection technology have even produced tiny sensors to constantly monitor exhaust-gas constituents and adjust fuel/air ratios to maintain a proper balance.

With all this information at hand, the computer calculates precisely the right amount of fuel the engine needs at any instant, no matter what the altitude or temperature. This information is passed along to an injector in each cylinder's inlet tract. The valve controlling the injector is held closed by a spring and is opened by solenoids. A fuel pump maintains constant pressure in the supply line so only the duration of the solenoid's opening affects the amount of fuel delivered into the inlet tract. Experimentation has demonstrated that timing the opening of the injector to valve timing is not necessary, so all of the injectors can open at the same instant. The fact that they squirt a finely atomized spray of fuel downstream at the cylinder is enough to insure good combustion.

And it is good combustion that is the secret of fuel injection. Unlike a carb, fuel injection precisely determines and delivers the fuel needed to produce a stoichiometric, or chemically correct, fuel/air mixture to insure complete combustion. That is why fuel injection can make both the EPA and speed freaks happy—it makes fuel metering a precise art, so we can convert precious gasoline into forward motion instead of smog. Fuel injection might in fact be one of the few EPA-pleasing high-performance modifications ever made to motorcycles.

—David Dewhurst

GUIDE LINES

Cycle Guide's Monthly Chronicle of Scoops, Tips, Rumors and Hard Facts

BY LARRY WORKS

COMING SOON

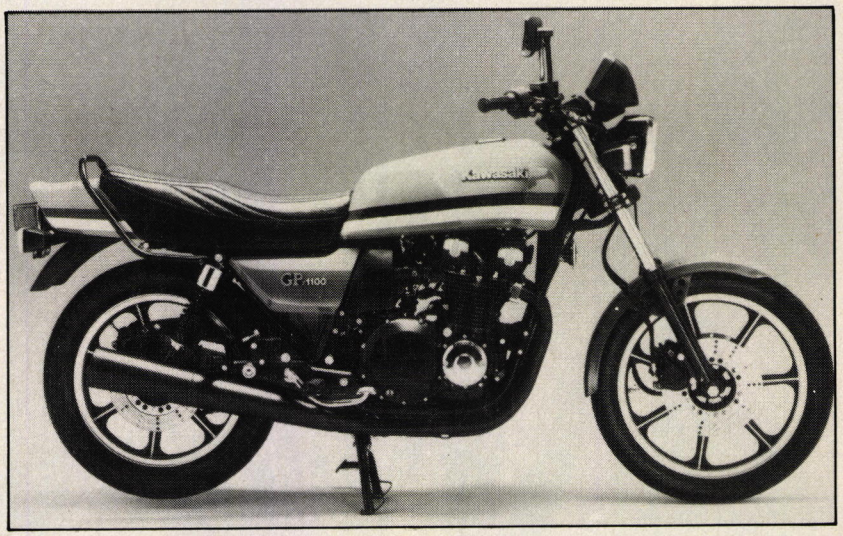
• Remember when the CBX came out and everyone sagely announced that it would be the fastest production bike for all time? Remember when the GS1100 debuted and everyone said that this was it, the bike that would stand as the high point in performance motorcycles? Well, they're at it again. The object of all that high-flying superlative is Kawasaki's flagship for 1981, the **GPz1100.** That's GP for GP and z just so you don't forget where it came from. Kawasaki's not pinning any specific horsepower claims to the fire-breathing GPz, but all the talk of "significant **horsepower** increases" over the KZ1000J are post-scripted with knowing smiles all around the room. Part of the increase is due to 91cc more displacement and part goes to the GPz's electronic fuel injection. The rest is being attributed to lots of work on the inlet and exhaust tracts. And the fact that the GPz tips the scales at **516 pounds** dry can't hurt, either. Triple drilled discs haul all that potential speed down, while rear shocks with five damping adjustments and seven preload settings keep it under control. You even get a neologism with the GPz to describe its quarter-mile times: "eleventeens."

• The other GPz for 1981 is about half the size of the 1100—with considerably more than half the speed potential. Kawasaki's new GPz550 is not, repeat not just a painted-up version of last year's KZ550 with a quarter fairing bolted in place. Significant changes in the 553cc four give it a different character completely. Included in those body-building changes are: a compression ratio of 10.0:1 compared to the standard's 9.5:1; exhaust **pipes** of 3mm greater diameter; intake valves enlarged from 23.5mm to 24mm; bigger main **jets** in the TK carbs; **cams** of greater lift and duration. As with the GPz1100 there are no specific horsepower figures being claimed, but talk of 10 percent more power than the KZ550 is circulating. In addition to the beefed-up engine, the GPz's steering geometry has been altered, resulting in a wheelbase that's nearly half an inch longer than the standard's. You'll find a rectangular quartz headlamp inside the fairing, as well as a fuel gauge and an ammeter, and an air-spring fork, damping-adjustable shocks and triple drilled discs complete the package. Under the poetic justice file, the GPz550 arrives in **Firecracker Red.**

• Another new designation that Kawasaki uses for 1981 is CSR. For those of you who don't shortspeak, **CSR** is an abbreviation of "cruiser," and it refers to a series of bikes that are more or less LTDs with lower prices and a few less features. This year there are four CSRs, including a 250, a 305, a 1000 and a 650 with **48-spoke** wheels that's the only KZ650 to have survived last year's KZ550/750 onslaught.

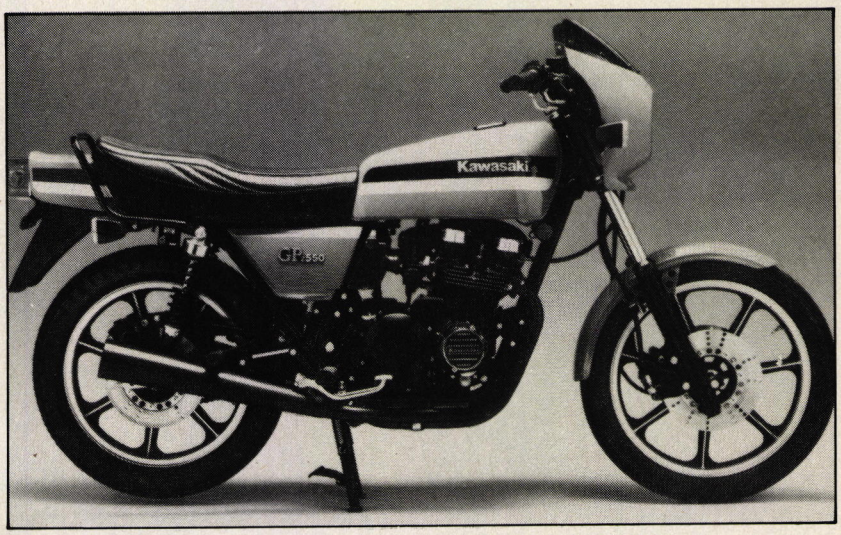
• That **305** is an all-new six-speed twin that should stimulate some **trading up** at Kawasaki dealerships. Aside from the rubber-mounted 306cc engine and the single disc in front, the 305 CSR has electric starting, a dry weight of 337 pounds and a seat height under 29 inches to endear it to first-time buyers.

• For sport tourers, the 1981 Kawasaki model line offers the **KZ1100** Shaft as a replacement for last year's 1000cc shafty. But bigger didn't mean heavier on this 1100, since it



1981 Kawasaki GPz1100, heir apparent to this season's hyperbike throne

But there's always somebody younger and faster out there.



New GPz550 is more than just a cut-and-paint job on the 1980 KZ550

One pocket rocket dipped in Firecracker Red, to go.

Continued

These

12-Month Unlimited Mileage Warranty*

*Offered only in the 48 contiguous United States and Alaska. Refer to U.S. Suzuki "GS Model Limited Warranty Policy" at Suzuki dealerships. A similar warranty is offered in Canada.

tourers possess a great inner drive.

When it comes to shaftdrives, nobody comes close to Suzuki.

Idle boast? Hardly. You see, Suzuki has managed to tame a 'bug' that still bites most other shafties: The dreaded driveline lash.

And that is why the 1981 GS-850G and GS-1000G are two of the smoothest shafts on the road today.

Smooth is the word for their power, too. Both use a 4-stroke DOHC engine which utilizes a roller bearing crank, automatic cam chain tensioner and four constant velocity carbs. It all adds up to smooth, quiet power over the long tour.

These sport tourers are a biker's dream over the short, twisty hauls, too. Give credit to a superb suspension consisting of multi-adjustable front air forks and rear shocks with 5 load settings and 4 damping adjustments.

Both are also equipped with triple slotted disc brakes, electric fuel gauge, Halogen headlight and self-cancelling turn signals.

To top it all off, each is backed by a 12-month unlimited mileage warranty.*

Obviously, we're very proud of our fine shaftsmanship.

Suzuki 1981 SUZUKI **The Performer.**

*Member Motorcycle Safety Foundation. Ride safely. Always wear a helmet, eye protection and appropriate riding apparel.

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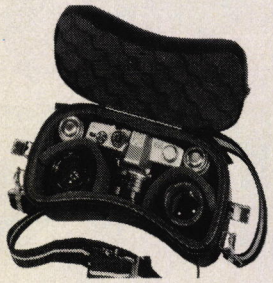

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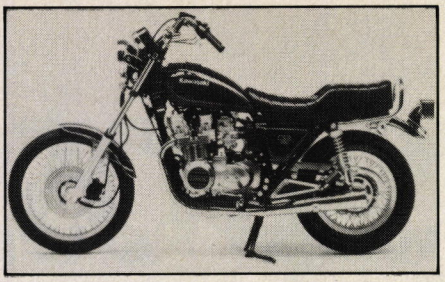
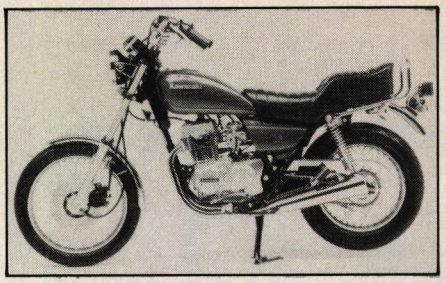


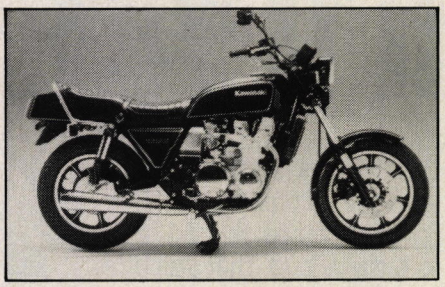
48-spoke wheels mark new KZ650H CSR

An abbreviation on the LTD concept.



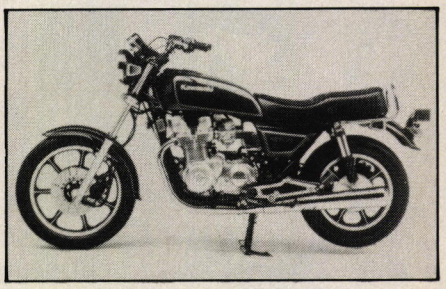
Kawasaki revives the 305

Low price, seat let you get a leg up.



Restyled KZ1300 is 38 pounds down

No longer a cheerleader for Team Fat.



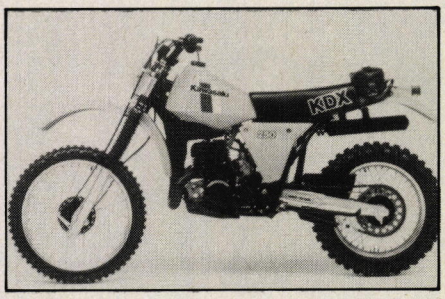
Displacement boost produces KZ1100 Shaft

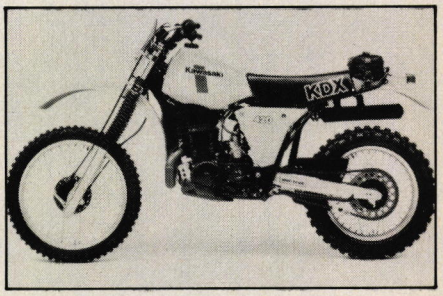
Bigger doesn't have to mean heavier.

weighs in 15 pounds lighter than the KZ1000 Shaft. It's also got rubber engine mounts, tinted rearview mirrors and electric instrumentation to keep you interested. And to keep what's yours yours, the 1100 **Shaft** has an anti-theft package that includes an anti-hot-wire system, locking centerstand and space for an optional cable lock.

• Weight loss was also part of the KZ1300's regimen for 1981, but in the case of the big six the loss was a bit more **dramatic.** Kawasaki engineers pulled **38 pounds** of excess long-hauler from the 1300 to prepare it for the 1981 model year. In addition, the air-spring fork now has an equalizer tube, as do the damping-adjustable air-spring shocks. This year, Kawasaki will paint the **KZ1300** any color you like—as long as it's black.

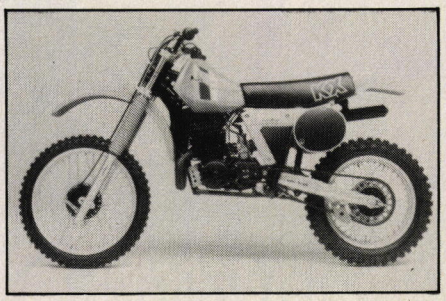
• Not all of the development that went into Kawasaki's 32-model 1981 lineup was meant to cater to the tarmac types, of course. For instance, the **KX250** and 420 will roll onto the showroom floor with **dual-rate** springing this year. And both bikes feature external damping adjustment on their Uni-Trak shocks this time around. To cap off the KXs, both the

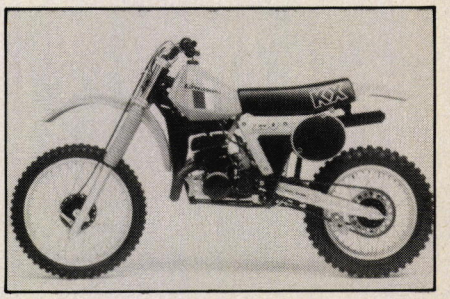




Off-season surgery for the KDX250/400 included Uni-Trak and some orthodontia

Open-classer now opens wider and the 250 has a new set of grinders.



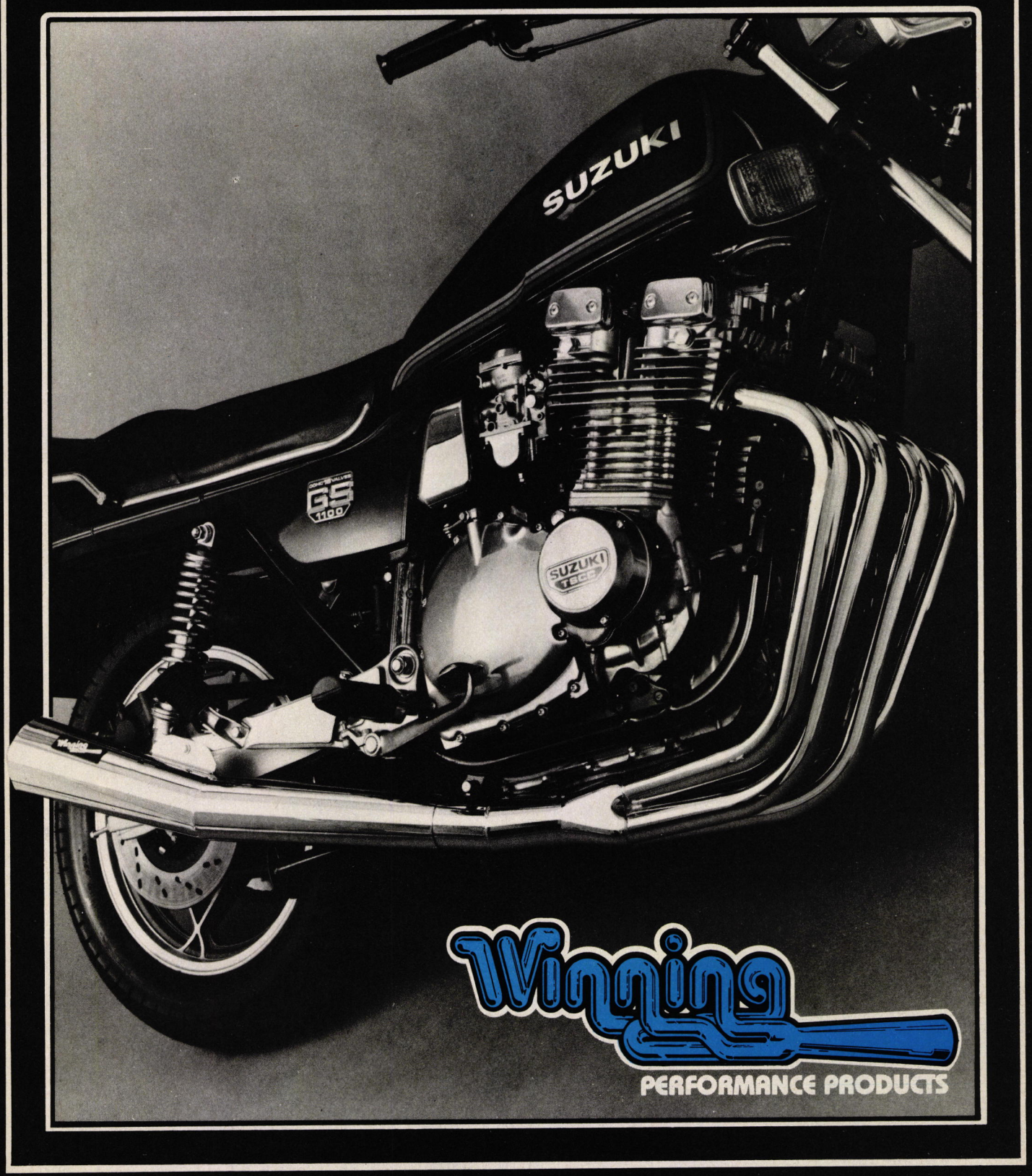


'81 KX250 and 420 come into the present with dual-rate springs

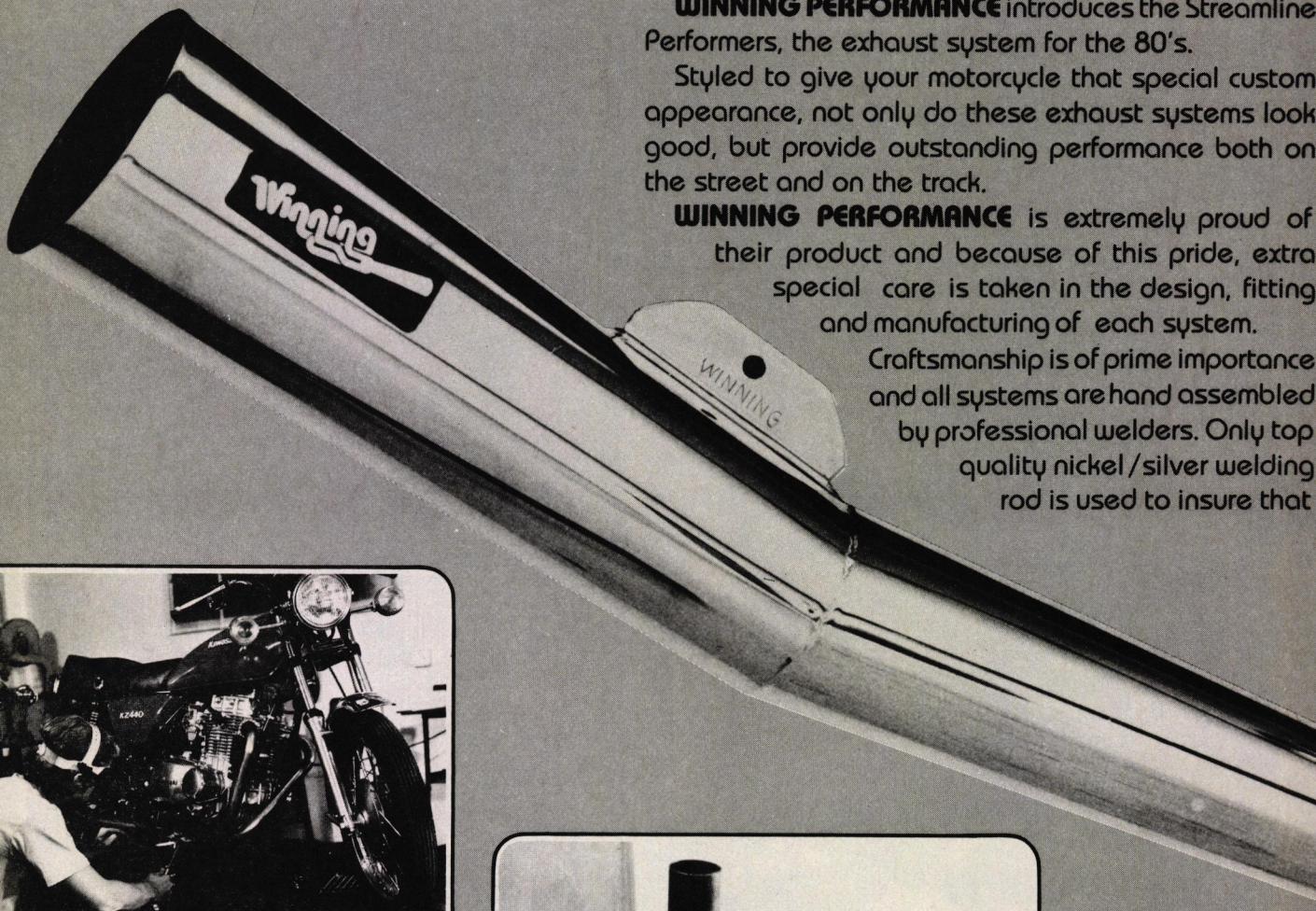
And a shock that makes teardowns for damping adjustments a thing of the past.

Continued

THE STREAMLINE PERFORMERS



THE STREAMLINE PERFORMERS

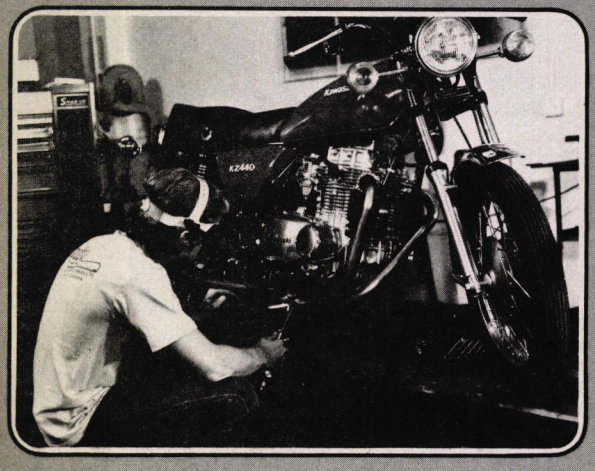


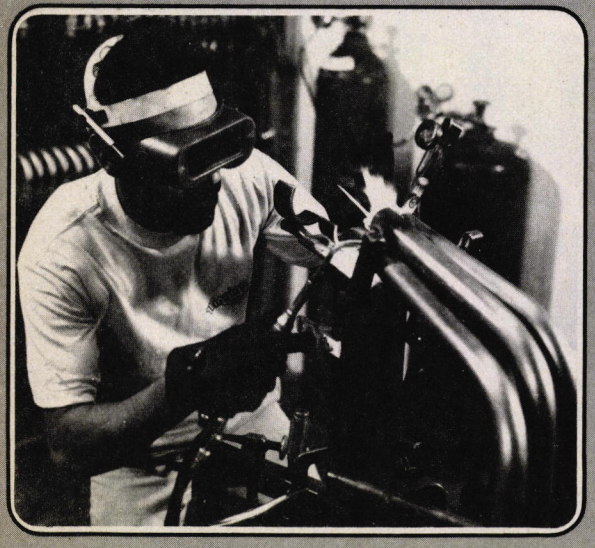
WINNING PERFORMANCE introduces the Streamline Performers, the exhaust system for the 80's.

Styled to give your motorcycle that special custom appearance, not only do these exhaust systems look good, but provide outstanding performance both on the street and on the track.

WINNING PERFORMANCE is extremely proud of their product and because of this pride, extra special care is taken in the design, fitting and manufacturing of each system.

Craftsmanship is of prime importance and all systems are hand assembled by professional welders. Only top quality nickel/silver welding rod is used to insure that



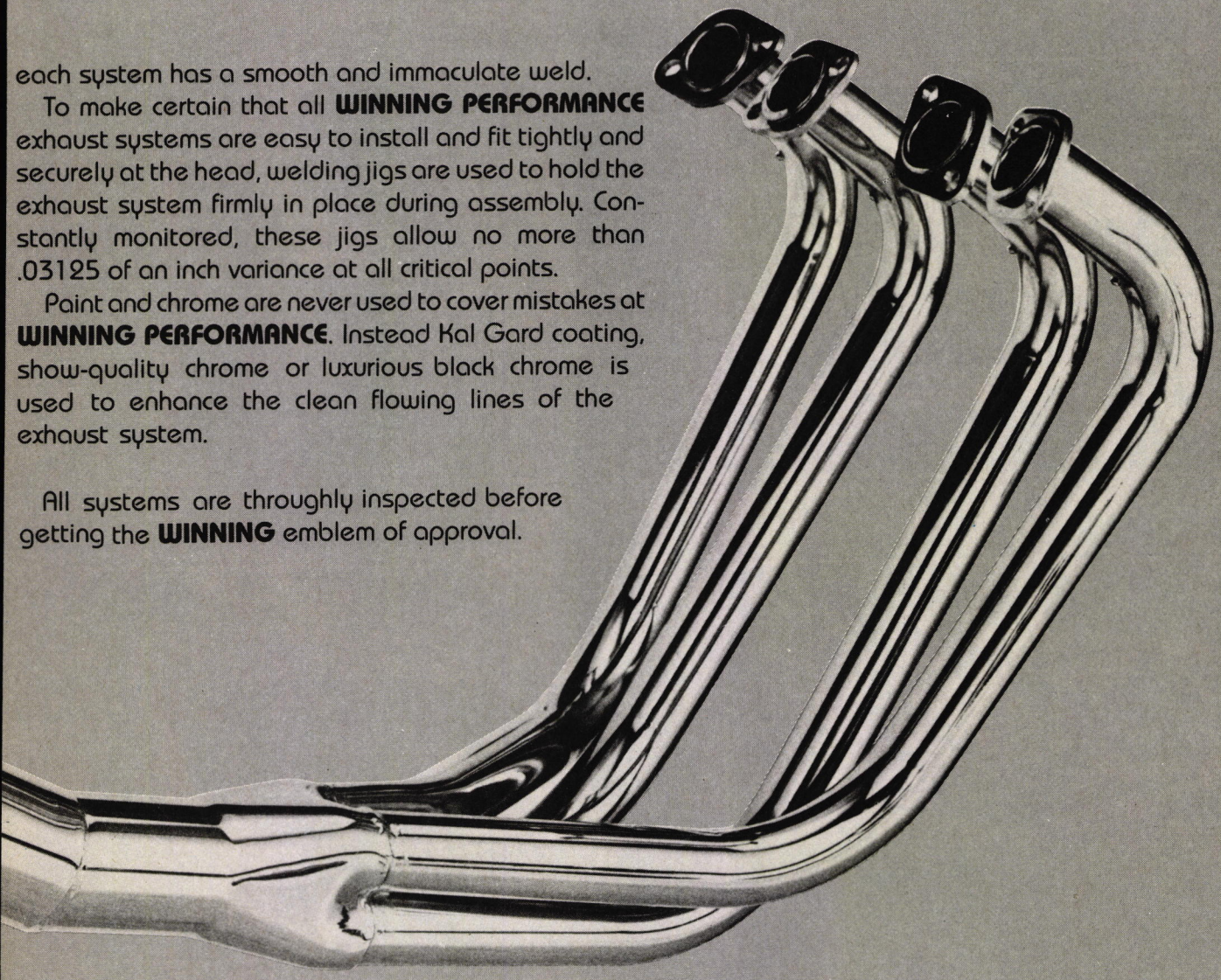


each system has a smooth and immaculate weld.

To make certain that all **WINNING PERFORMANCE** exhaust systems are easy to install and fit tightly and securely at the head, welding jigs are used to hold the exhaust system firmly in place during assembly. Constantly monitored, these jigs allow no more than .03125 of an inch variance at all critical points.

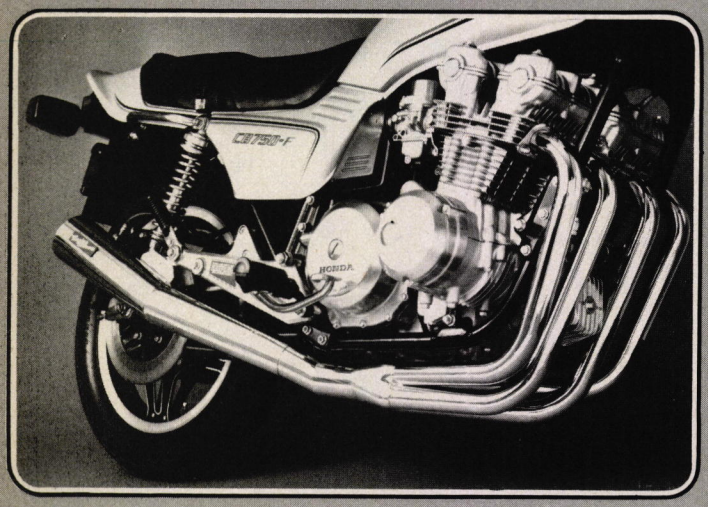
Paint and chrome are never used to cover mistakes at **WINNING PERFORMANCE**. Instead Kal Gard coating, show-quality chrome or luxurious black chrome is used to enhance the clean flowing lines of the exhaust system.

All systems are throughly inspected before getting the **WINNING** emblem of approval.

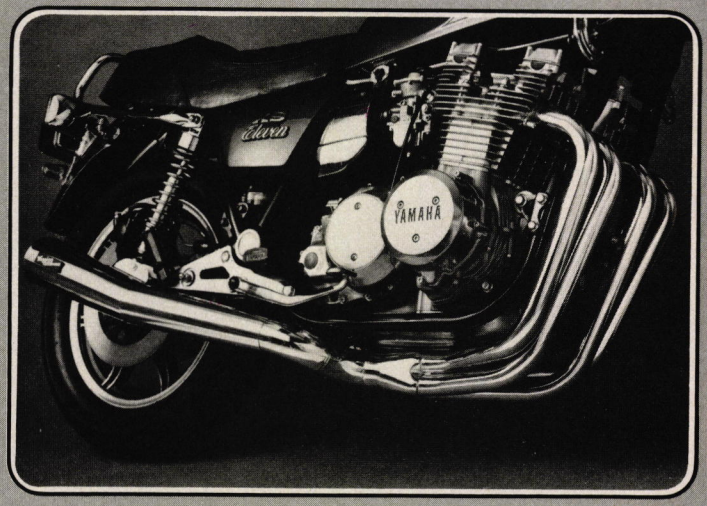


APPLICATIONS

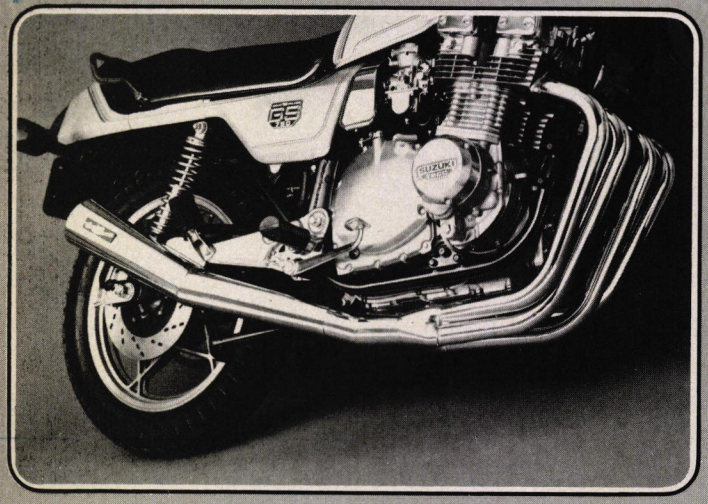
Honda CB750-F



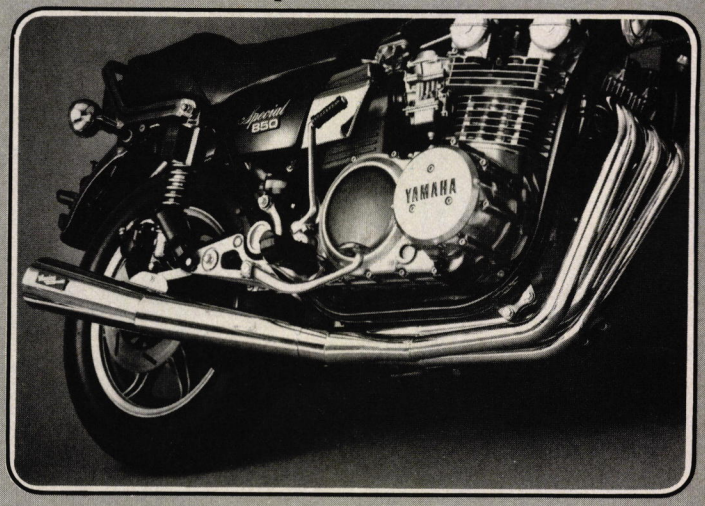
Yamaha XS11



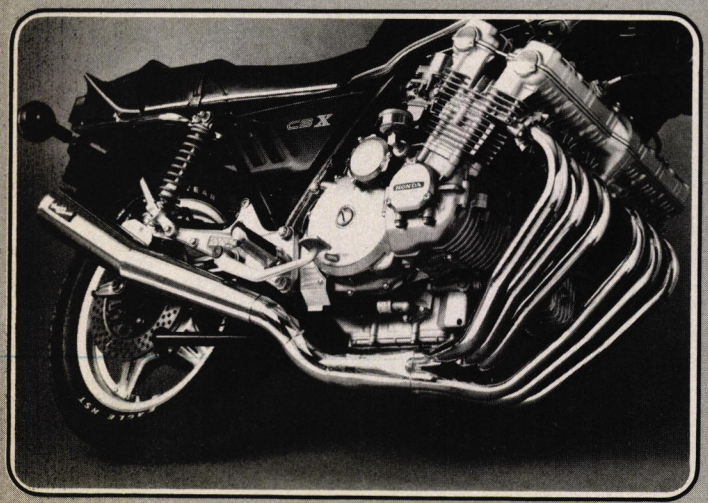
Suzuki GS750



Yamaha 850 special



Honda CBX



All exhaust systems avail

HONDA

CBX		6-1
GL 1100	1980-81	4-1
GL 1100	1980-81	4-2
GL 1000	through 1979	4-1
GL 1000	through 1979	4-1
CB 900 custom	1980-81	4-1
CB 750 K, F & LTD.	1979-81	4-1
CB 750 custom	1980-81	4-1
CB 750 K, F & LTD.	1977-78	4-1
CB 750 K model only	1969-76	4-1
CB 650 Standard	1979	4-1
CB 650 Std & Custom	1980-81	4-1
CB 500 K		4-1
CB 550 F		4-1
CB 350		4-1
CB 400 F		4-1
CX 500	1979-80	2-1

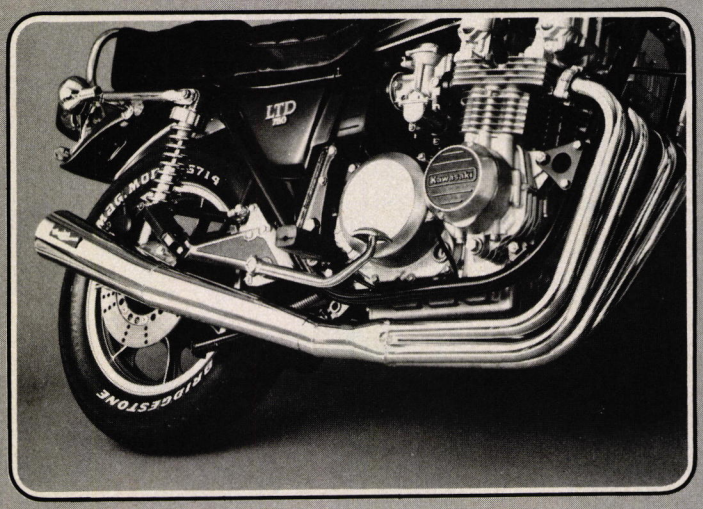
HONDA

Hawk		2-1
CB 450		2-1
CB 500 twin		2-1
CB 350 twin		2-1

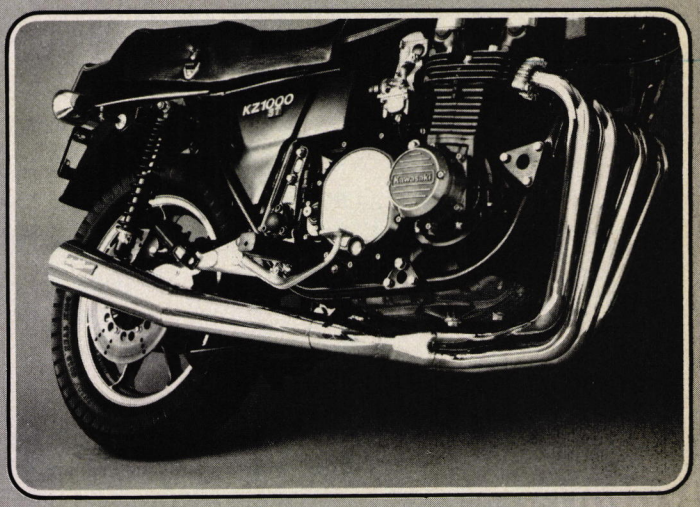
KAWASAKI

KZ 1000 & KZ 900		4-1
Pro Race (competition use only, must remove centerstand)		
KZ 1000		4-1
KZ 900		4-1
KZ 750		4-1
KZ 650		4-1
KZ 550		4-1
KZ 750 twin		2-1
KZ 400 twin		2-1
KZ 440 twin	1980-81	2-1

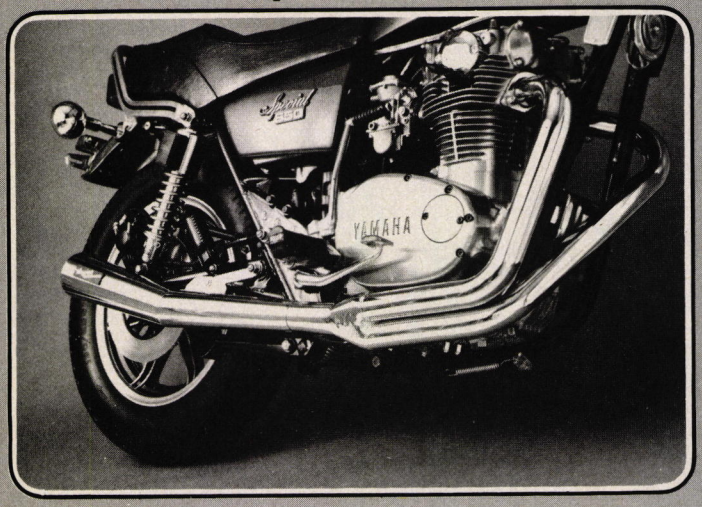
Kawasaki LTD750



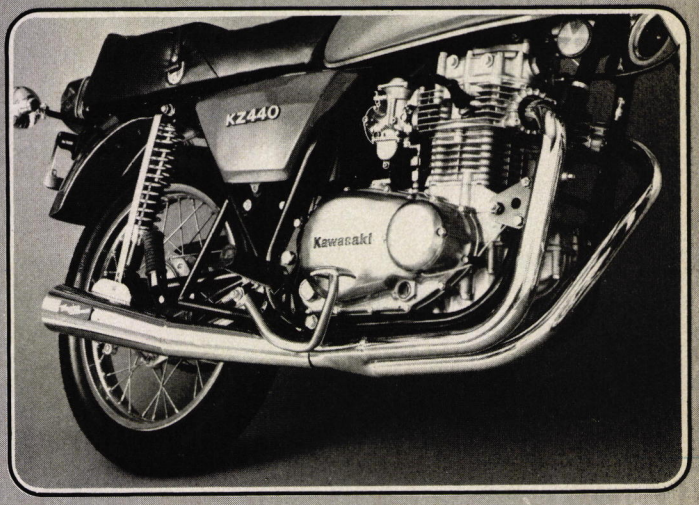
Kawasaki KZ1000



Yamaha 650 special



Kawasaki KZ440



e in chrome or Kal Gard

NORTON

750 & 850 Commando		2-1

SUZUKI

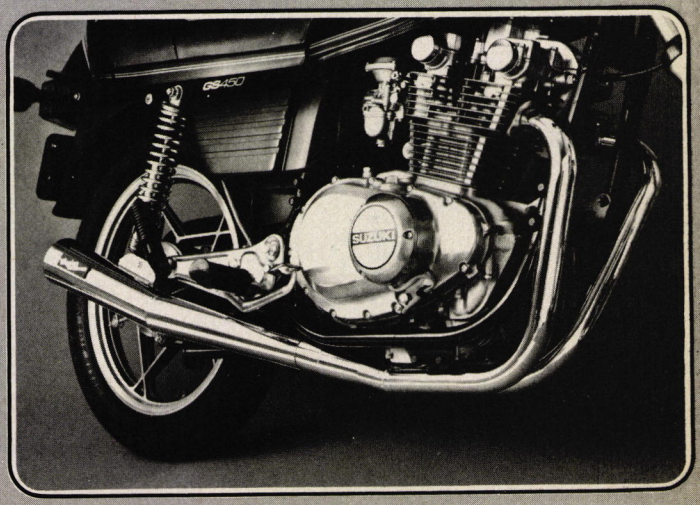
GS 1100 E Model	1980-81	4-1
GS 1100 L Model	1980-81	4-1
GS 1100 E Model	1978-80	4-1
GS 1100 L Model	1980-81	4-1
GS 750	1980-81	4-1
GS 850 E Model	1980-81	4-1
GS 750 L Model	1980-81	4-1
GS 750	1977-79	4-1
GS 850 E & L	1977-79	4-1
GS 550 E & L	1977-80	4-1
GS 450 S Model	1980-81	2-1
GS 450 L Model	1980-81	2-1
GS 400 & GS 425		2-1
GSX 250 & GS 250T	1980-81	2-1
GN 400X Single	1980-81	1-1

YAMAHA

XS 1100 Standard	1978-81	4-1
XS 1100 Special	1978-81	4-1
XJ 650 Maxim	1980-81	4-1
XJ 750 Seca	1981	4-1
XJ 550 Seca	1981	4-1
XJ 750		3-1
XJ 850 Standard		3-1
XJ 850 Special		3-1
XS 650 twin		2-1
XS 360 & XS 400 twin		2-1
SR 500 Single		1-1

Winning

Suzuki GS450



TECHNICAL DATA

WINNING PERFORMANCE exhaust systems are designed with three major factors in mind . . . To give your motorcycle streamline styling, increased power and better fuel economy.

The secret to increasing your machine's performance is to improve the flow of both fuel and air to the engine. Once this is accomplished, more horsepower is produced. Therefore, a good exhaust system can make all the difference. Disposing of the exhaust gasses efficiently actually draws more fuel-air mixture into the cylinders for the next combustion cycle. And, this draw, not only, alters your bike's performance, but plays a part in fuel economy as well. A denser charge in the cylinder produces a stronger explosion and as the motor is producing more horse-per-rev than before, it can actually save on gas consumption, provided you watch your throttle.

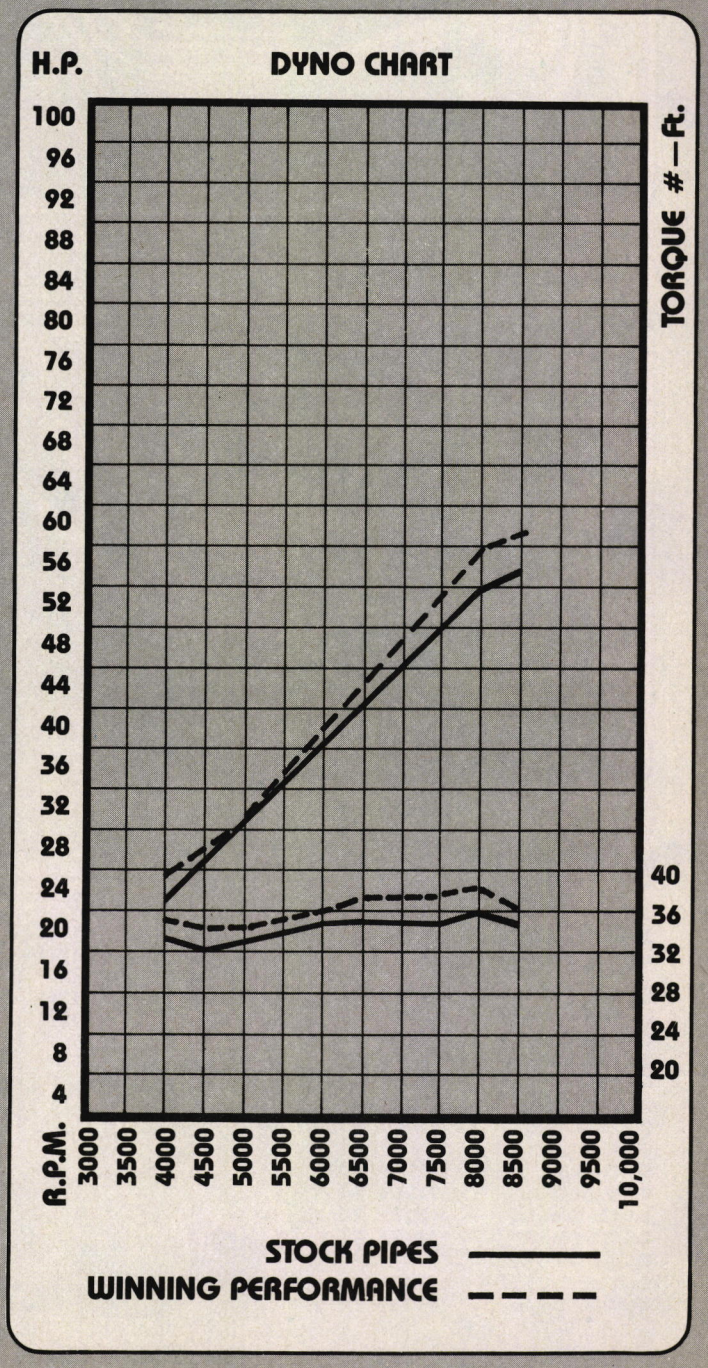
With a WINNING PERFORMANCE exhaust system, the power increase you get goes beyond peak horsepower because these systems are built to give your motorcycle more power in the low and mid-range where it is most often needed.

Another plus from WINNING exhaust systems is a decrease in weight. When you cut down on the overall weight of your motorcycle, the engine doesn't have to work as hard. And, a lower demand for horsepower means less fuel used.

WINNING PERFORMANCE is also extremely conscious about noise level. Although there is no current federal noise law, there are state and local statues that apply in many areas. WINNING PERFORMANCE is well aware of this and their concern has made them the industry leader in developing high flow quiet exhaust systems. Long hours of research and testing have resulted in an exhaust system that gives a low exhaust note suitable for riding anywhere.

In addition, WINNING PERFORMANCE doesn't feel that you should have to give up ease of maintenance or convenience for good performance. There is no loss of oil filter or drain plug access. Side and center stands do not have to be sacrificed. And good ground clearance is also another feature of these fine crafted exhaust systems.

WINNING PERFORMANCE offers you the best. Not only do you get a top quality, expertly crafted product, but you get that special streamlined custom look and the performance that you want.



PARTS & ACCESSORIES

Die Cast Emblem and Sew-On Patch

Now available, the new WINNING PERFORMANCE Die Cast Emblem. For the WINNING fan who wants to replace his sticker, this die cast emblem will be a welcome addition to his exhaust system.

The black and silver sew-on patch is perfect for any jacket, hat or shirt. Featuring the WINNING PERFORMANCE logo in rich silver embroidery, this patch measures 2" x 3¾".

Baffles and Baffle Replacement Kits.

No matter what type of riding you do, be it track or street, WINNING PERFORMANCE has a baffle that will suit your riding style and conditions. For example, for the touring rider who wants an increase in performance without sacrificing quiet riding, WINNING PERFORMANCE features the EQ Baffle. And, for the racer, there is the Competition Baffle. Designed for the race track ONLY, this particular baffle delivers the right amount of back pressure for the very best performance. . .

And, to keep your exhaust system always in tip top condition, WINNING PERFORMANCE provides a complete line of Baffle Replacement Kits.

Replacement Muffler Kits

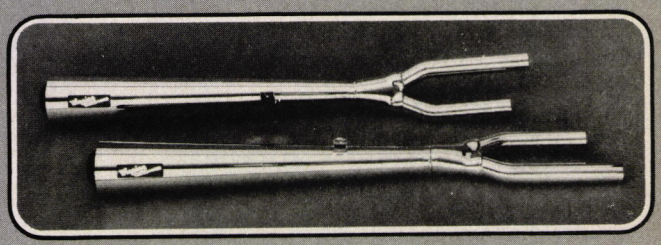
For the motorcyclist who wants to upgrade the appearance or replace an old system on his motorcycle WINNING PERFORMANCE has Muffler Replacement Kits. Available in chrome only, these kits simply slide onto the standard header pipes.

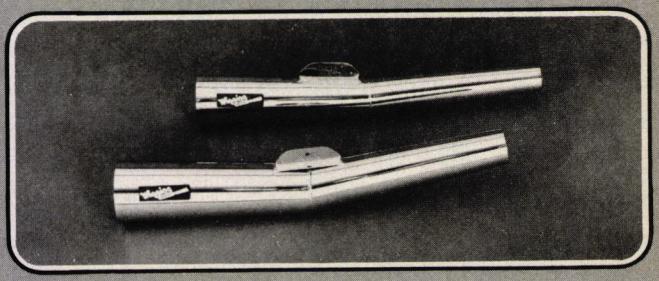
Slip On Megaphones

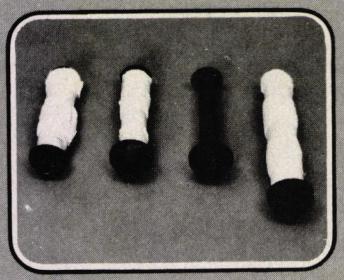
If you want to improve the performance and appearance of your motorcycle, but don't want to modify the entire exhaust system, WINNING PERFORMANCE offers a line of Slip On Megaphones.

Replacement Megaphones

There are numerous things out on the road that can damage your WINNING PERFORMANCE exhaust system. However, most of this type of road damage is normally absorbed by the megaphone. Therefore, WINNING PERFORMANCE features a complete line of Replacement Megaphones for their exhaust systems. There is no need to by a new WINNING system when you just need to replace part of it.







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The Winning T-Shirt

WINNING PERFORMANCE presents their version of the traditional T-shirt. Perfect for any casual occasion, this 100% cotton shirt is available in either beige with a brown WINNING logo silk-screened on the front and back or in light blue with a black logo. Mens size only: Small, medium, large and extra large. Specify size and color when ordering.

Ladies Special

For the WINNING gal — her own special T-shirt. Made of an interlocking weave of 50% cotton and 50% polyester, this French cut T-shirt always looks terrific. Available in either beige with a brown silk-screened logo or in blue with a black logo. Womens sizes: Small, medium and large. Please specify size and color when ordering.

The Golf Shirt

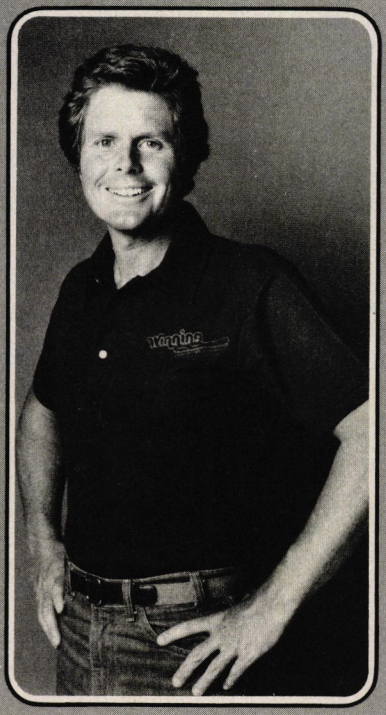
The WINNING golf shirt will keep you comfortable and at ease in any situation. Made of a 50/50 cotton and polyester blend, this custom tailored shirt is available in maroon, yellow, navy, white, brown and rust, all with the WINNING PERFORMANCE logo silk-screened above the pocket. It is another example of the fine streamlined styling that comes from WINNING PERFORMANCE. Available in small, medium, large and extra large. Please specify color and size when ordering.

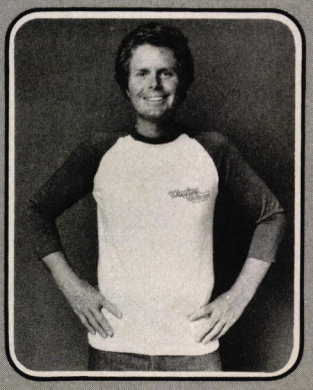
The Winning Baseball Cap

WINNING'S big league, black and white baseball cap features a sporty visor with a richly embroidered patch on the front. Adjustable to fit all sizes, this cap definitely gives you WINNING style.

The Baseball T

Like the WINNING PERFORMANCE Exhaust Systems, this baseball T-shirt is top quality. Made of a 50/50 blend of cotton and polyester, it features the WINNING logo on both the front and back. Available in white with your choice of red or blue 3/4 ragland sleeves and matching trim around the neck. Mens size only: Small, medium, large and extra large. Specify size and color when ordering.





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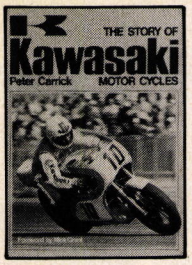
Book Review



THE STORY OF KAWASAKI MOTORCYCLES
By Peter Carrick
128 pages, $20.90
Classic Motorbooks
P.O. Box 1
Osceola, Wisconsin 54020

• Although the heritage of the Kawasaki two-wheeler dates only from 1962 and doesn't make a compelling history, Carrick feels obliged to live up to the title of the book by reciting the step-by-step development of this marque. He struggles to present Kawasaki as a young and vigorous company even as he relates that Kawasaki Heavy Industries became involved in the motorcycle business largely because the firm "lacked a point of public recognition."

This story contains the by-now-standard short hit of technical data interspersed with descriptions of each new model that rolled to the end of the Kawasaki assembly line. Carrick gives the Kawasaki designers and engineers the benefit of the doubt—and stretches the reader's credibility—with a description of the Mach III triple as a "long-distance touring machine," and "good handling" noted as one of the charms of the original Z-1.

However, the author has the good sense not to dwell on areas of opinion and instead concentrates on Kawasaki's exploits in the world of Gran Prix roadracing. This story opens with a chapter about the efforts of British rider Dave Simmonds to give Kawasaki its first World Championship in the 125cc class in 1969. The closing chapters are also devoted to racing drama, with such riders as Yvon Duhamel, Mick Grant and Gary Nixon profiled and the intricacies of their bikes explored. Along with the text are 98 photos, largely of pavement-scratching, including a shot of Paul Smart in 1972 demonstrating the knee-dragging style that would soon revolutionize roadracing.

If Carrick's attempt at defining Kawasaki fails, it fails as a useful history lesson. Its strong points are the attention paid to GP racing and the support of good art. It might be that the book's shortcomings prevent it from being *the* story of Kawasaki motorcycles, but Carrick's strong chronicles of marque confrontations on the GP circuits make it at least *a* story that is worthwhile reading. —*Terry Whytal*

250 and 420 were issued aluminum footpegs and aluminum **I-beam** swingarms to replace the box-section swingarms on last year's bikes.

• Like the big KXs, the KDX250 and 400 underwent some rethinking for 1981. First, the KDX400 was boosted to a **420** with a 3mm bore increase, and the 250 received **six-speed** gearbox. Then both bikes got Uni-Traked, increasing rear wheel travel to 9.4 inches for each. The aluminum-body Uni-Trak shocks on both bikes are equipped with dual-rate springs and are adjustable for damping, but only after you disassemble the shock. Both the KDX250 and 420 also come with **quick-detach** rear wheels this year.

FEDERAL CASES

• One of the more popular planks of the 1980 Republican platform was the removal of the 55 mph **national speed limit.** Now that Ronald Reagan is in the White House, it remains to be seen whether that promise to the voters will be kept. But whether or not the limit is lifted has never been entirely up to the President. Any removal of the limit would have to go through both houses of Congress. It seems likely that the Republican-dominated Senate would pose few obstacles for a strong Reagan-backed **recision** of the double nickel, but the largely Democratic House of Representatives could still put the skids on any attempt to raise the national maximum speed limit or do away with it altogether.

• The natural result of most administrative changes following an election is a **shakeup** in political appointments. This year that shakeup is expected to include the National Highway Traffic Safety Administration. And in particular the **job status** of one Joan Claybrook.

• New Year's Day trundles in with its own load of traditions. But for **Indiana** riders this year it meant more than football games, resolutions and hangovers. Starting January 1, 1981, Indiana law changed to require that in-state riders get motorcycle operator **licenses.**

HARD CASH

• NMRA racing has turned big business, by all accounts. And those accounts show that **Suzuki** just kicked in its ante for the 1981 racing season. The pot in Suzuki's case was **$73,000** in contingency money, which will be doled out at about $10,000 for each of the six **NMRA** all-motorcycle events this year. The remainder will go for NHRA events that run both cars and bikes.

• Valvoline is also supporting NMRA go-fasts this year. Winning riders have a shot at a 1981 **contingency** fund of $7600—a figure that nearly doubles Valvoline's 1980 commitment.

• But don't fool yourself into thinking that the **money** these days is all going to straight-line racers. For example, spokesmen for the Winston Pro Series recently announced that **R.J. Reynolds** will again stake the Winston Series to a $125,000 point fund.

Continued

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In Europe, it brought crowds to their feet.

In America, it will bring the competition to its knees.

Honda introduces a motorcycle that needs little introduction.

The long-awaited CB900F.

In Europe, dedicated road riders already know the thrill of owning this motorcycle. A bike that so harmoniously integrates rider and machine.

A bike that can slalom through twisting Alpine roads or soar down the Autobahn.

A bike that, after crossing the mountains and valleys of Europe, is finally crossing the Atlantic. Complete with new features and refinements to make it better than ever.

The Power.

The CB900F is powered by one of the most advanced engines in the industry. A race-bred 902 cc DOHC four-stroke four-cylinder powerhouse. Developed and tested by Honda's RCB factory team on the European endurance road racing circuit.

30-way adjustable shocks with remote reservoirs.

It's strong. So there's lots of power out of the corners and down the straights.

It's smooth. Double overhead camshafts and four valve Pentroof™ combustion chambers allow for more overall port area, centralized spark plugs and lighter individual valve weights. The result is freer breathing, quicker burning and improved performance at higher rpm's. Maintenance is easier too, because the camshaft doesn't have to be removed for valve adjustment and two valves can be checked or adjusted at the same time.

Carburetion comes from four 32 mm constant velocity carbs with an accelerator pump. So there's smoother, crisper throttle response.

The Handling.

If all roads were designed in a straight line, designing a bike to handle them would be easy. Unfortunately, this isn't the case.

A complete road bike is more than just straight ahead speed. Handling is essential and is achieved by the orchestration of power, suspension and frame so they work with each other.

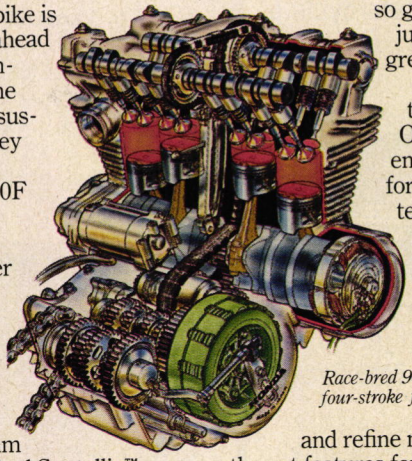
The Honda CB900F is such a bike.

A double cradle frame with tapered roller steering head bearings, for instance. Strong, slim, light and equipped with rubber engine mounts to help damp vibration.

In the front, 39 mm air assisted forks with dual Syntallic™ bushings. And a single inlet filler with air pressure equalizer makes them easier to adjust. By varying pressure, the ride can be made stiffer or softer to accommodate different riding and load conditions.

In the rear, Honda's exclusive 30-way adjustable VHD™ shock absorbers. With remote reservoirs to help keep the shocks cool and reduce fading.

Combine these frame and suspension features with reverse ComStar™ wheels, a needle bearing swing arm pivot, V-rated high speed tubeless tires, lightened triple disc brakes with dual piston calipers and a very comfortable riding position and you have a motorcycle that runs circles around the competition.



Race-bred 902 cc DOHC four-stroke four-cylinder engine.

The Reliability.

The World Endurance Road Race Championship. A test of man and machine so grueling that winning just once is considered a great feat.

Honda won the title five years in a row. On a bike powered by an engine which is the basis for the CB900F. A fitting testimony to the engine's endurance and performance.

And a chance for Honda's RCB factory team to test and refine many of the state-of-the-art features found on the CB900F.

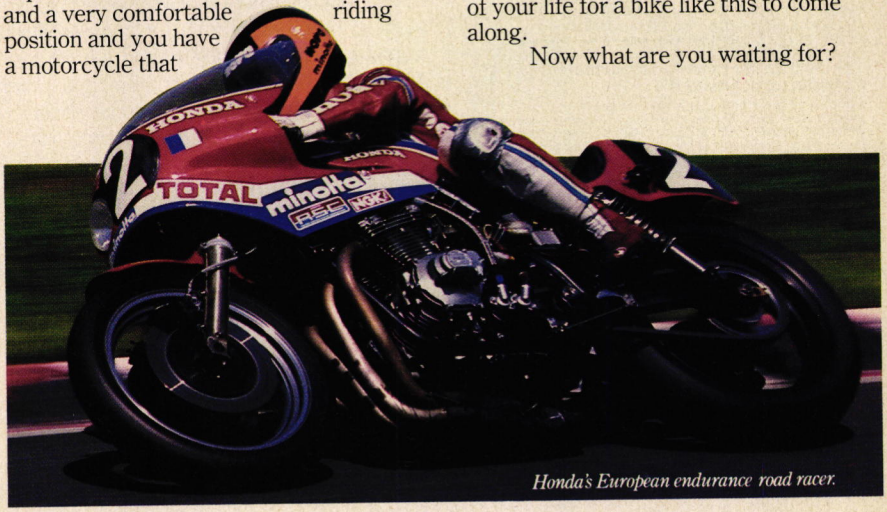
The CB900F also has many features which make daily riding easier and maintenance less frequent.

Transistorized pointless ignition, for example. No points. No condensers. No maintenance.

Or the oil cooler with a trick front fender to direct the air stream into it. It helps keep oil temperatures lower and more constant so there's less chance of oil breakdown. Less chance of getting stuck somewhere just outside of nowhere.

The Honda CB900F. You've heard of its European performance. You know of its mystique. And you've waited most of your life for a bike like this to come along.

Now what are you waiting for?



Honda's European endurance road racer.

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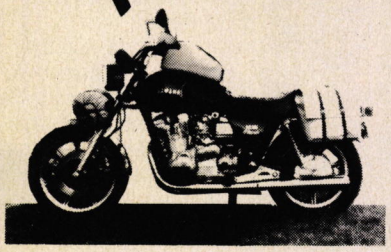

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RUMORS

• Without a doubt, the juiciest bit of could-be that's circulating this month is a bit of hot air about some experimentation going on in the depths of **Yamaha.** Some sources say that the result of that work will be a production turbo that splits the functional difference between conventional turbochargers and superchargers. The word is that this **turbo,** mounted on an XS1100, is linked to the crank with a speed-sensitive clutch. This arrangement would eliminate the lag normally associated with turbos, since the impeller starts spinning as soon as the engine turned over. Then, as engine speed increases, the clutch disengages, leaving the turbo to be driven by exhaust gases only. Pretty heady stuff, all told, but not as volatile as the rest of the rumor: that this turbo **Eleven** will be available over the counter by 1982.

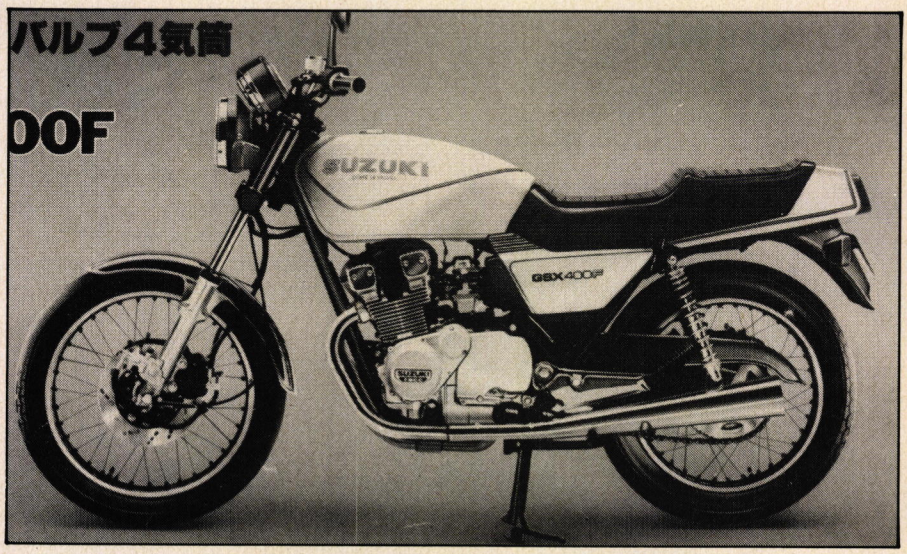
• News via the Pacific connection shows that **Honda** is displaying an inordinate amount of interest in a blueprinted Harley **KR750** engine. The word is that this news goes a step beyond a new Honda flattrack entry. Now that Yamaha has cracked into Harley-style vee-twins; sources claim, a new tandem Honda vee-twin street bike by 1983 is not out of the realm of likelihood.

• Far more likely is that you'll see a new **Moto Guzzi** V-65 long before any RD Maico rolls around. Overseas sources have cranked up the rumor that Guzzi is almost ready with its all-new **V-65** after having abandoned the attempt to pump up the V-50's engine to 650cc.

• Ears close to Milwaukee report that another new bike is nearing completion. All signs show that the **Porsche-Design** Harley that you read about in this column months ago is imminent. The story circulating now is that some of the styling schemes that Harley designers came up with were deemed too **radical,** so the project went into overtime. What that bodes for the looks of the rumored V-4 remains to be seen.

• Still on the subject of **styling,** Suzuki is reportedly working hard to shed the plain-jane tag that was affixed firmly to its GS series years ago. Insiders report that a major effort is underway to facelift the new **GS** line.

• And one of the new-look Suzukis will be the GS550, according to the talk. The rest of what's flying about the **550** is that it will have **16 valves** and that it is based closely on the GSX400 that was yanked from the Paris Show at the last minute.



Rumors link Paris-pulled 16-valve GSX400 with '81 GS550

Adding TSCC to the title fight for the middleweight crown.

AFTER THE FACT

• The Charting The Changes section of December's KDX175 test listed a bit of information that might be hard to prove. For one thing, it's wrong. One of the changes that was charted was a switch on the KDX from last year's **Tsubaki** final-drive chain to a D.I.D. chain for the 1981 model. That information, supplied by Kawasaki when the test was written, is incorrect. All Kawasaki dirt bikes assembled in the U.S.—which includes the **KDX175**—use a Tsubaki 520 Pro Series chain. The bike in the December test was part of an early production run that was assembled in Akashi, and like most Kawasaki dirt bikes built in Japan, it was fitted with a D.I.D. chain.

APART FROM THE CROWD

• Moto-detente is getting more and more complicated, as a recent meeting of the **FIM** Congress showed. It was the scene of the first involvement by the People's Republic of China and protocol was the order of the day. Everything seemed perfect—until someone noticed a **gaffe.** The flag the FIM used to represent the Chinese delegates was not the five-star red flag of mainland **China** but the red-and-blue flag of Taiwan. After the banner was replaced the meeting returned to an even keel

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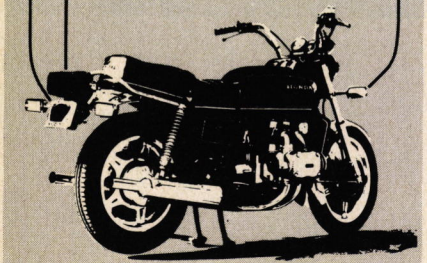

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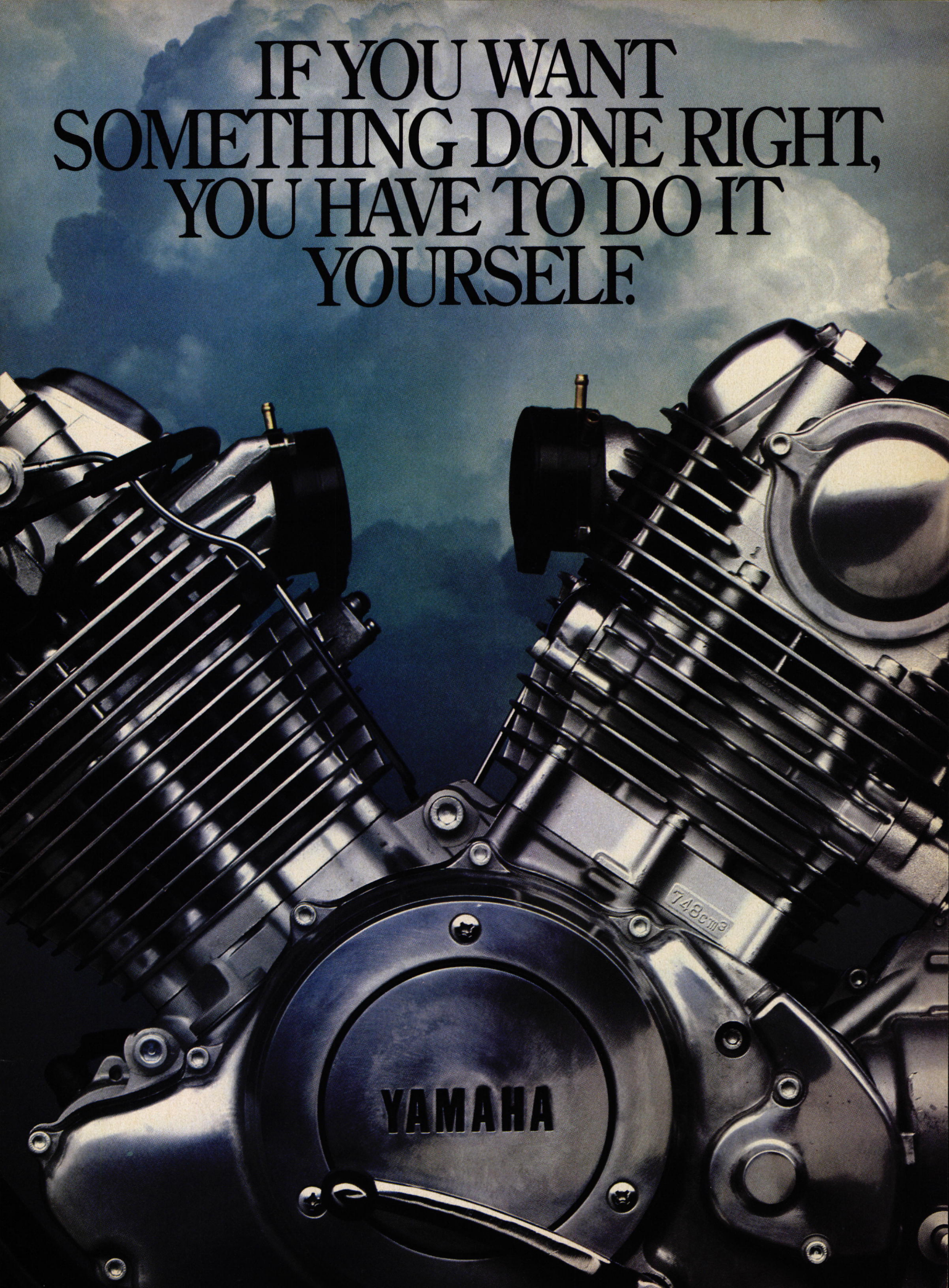
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THE ENGINE: BRINGING HISTORY UP TO DATE.

We started with the classic fore and aft V-twin configuration developed nearly a century ago.

Over the years, it proved to have a lot going for it. Reliability. Narrowness. Highly efficient weight distribution. And an inherent fuel economy that made it an ideal engine for today, now that gasoline is measured in dollars.

Still, the V-twin lacked something only we could give it.

Yamaha engineering.

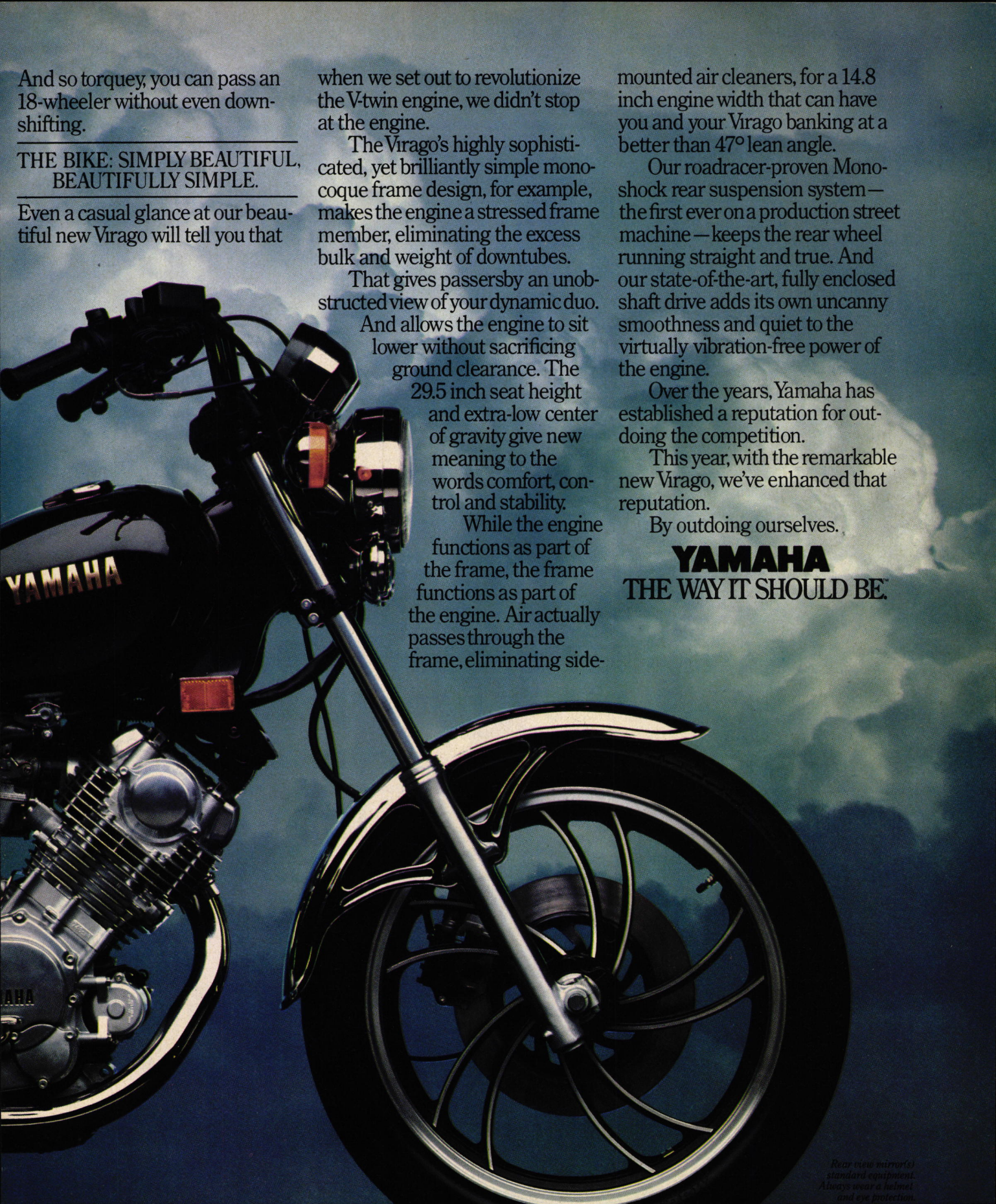
Looking at the outside of the engine, you'll notice we took the liberty of moving just about everything around.

For instance, we placed the cylinders at a 75° angle, creating the ideal combination of engine height and length, while leaving plenty of room in between for carburetors. Intake components. Plus extras like two separate oil pumps.

Rotating the rear cylinder half a turn keeps the exhaust pipe from interfering with our unique, individually adjustable dual carburetor set up. While off-setting the cylinders slightly improves rear cylinder cooling.

By simply reversing the crankshaft rotation, we shifted any ambient engine vibration from the frame to the rear wheel. So you leave it somewhere on the road behind you.

Finally, to eliminate the V-twin's traditional "dead stroke," we developed our own firing sequence on alternate crankshaft rotations. The power produced is so smooth, there's no need for a balancer.



And so torquey, you can pass an 18-wheeler without even downshifting.

THE BIKE: SIMPLY BEAUTIFUL, BEAUTIFULLY SIMPLE.

Even a casual glance at our beautiful new Virago will tell you that when we set out to revolutionize the V-twin engine, we didn't stop at the engine.

The Virago's highly sophisticated, yet brilliantly simple monocoque frame design, for example, makes the engine a stressed frame member, eliminating the excess bulk and weight of downtubes.

That gives passersby an unobstructed view of your dynamic duo. And allows the engine to sit lower without sacrificing ground clearance. The 29.5 inch seat height and extra-low center of gravity give new meaning to the words comfort, control and stability.

While the engine functions as part of the frame, the frame functions as part of the engine. Air actually passes through the frame, eliminating side-mounted air cleaners, for a 14.8 inch engine width that can have you and your Virago banking at a better than 47° lean angle.

Our roadracer-proven Monoshock rear suspension system—the first ever on a production street machine—keeps the rear wheel running straight and true. And our state-of-the-art, fully enclosed shaft drive adds its own uncanny smoothness and quiet to the virtually vibration-free power of the engine.

Over the years, Yamaha has established a reputation for outdoing the competition.

This year, with the remarkable new Virago, we've enhanced that reputation.

By outdoing ourselves.

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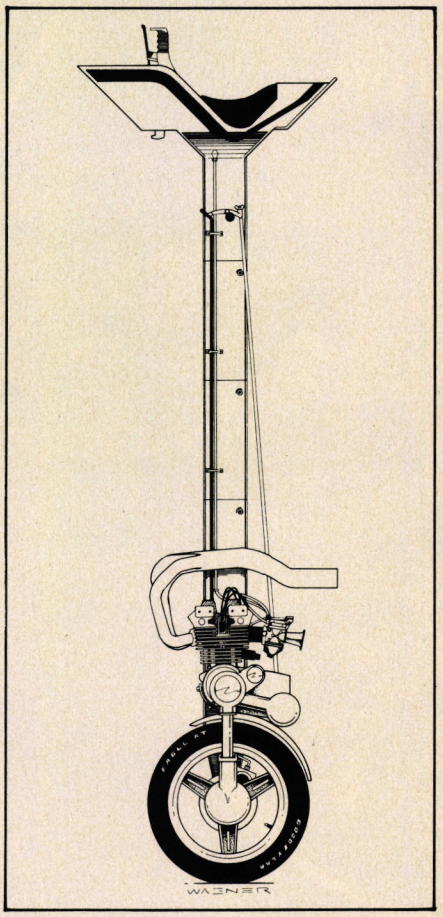
until the Chilean delegates complained that no flag representing Chile was present. Since no appropriate flag could be found, all the colors were struck.

• Fans of the seriously looney will appreciate the tale of motorcycle stuntman Rex **Blackwell,** who recently made news when he jumped his stunt-prepared Maico a skosh under 40 yards in front of a packed house. It wasn't the distance that stirred up the onlookers, though. Not content to **fly** his bike over vats of acid, crocodile pits or open flames, Blackwell risked immortalization by puree when he jumped over a pair of helicopters with their engines running and rotors spinning. Reports show that Blackwell cleared the second **copter** by something less than one yard.

• Still for those of stunted interests, a question: What takes 22 minutes to perform, covers a bit less than **15 miles** and is run at an average speed of less than 37 mph? All right, a hint then. It also uses only about half the amount of rubber you'd expect. The answer is **one of the world's longest wheelies, set by** English rider Dave Smith.



Sketchy detail of practice bike

Source confirms Uni-Trak bottom end.

• Further reports on Smith's record ride show that he worked out for months on a specially

ROAD TEST:

Kawasaki KZ1000J

And now for an important message to all Z-1 freaks: You can come home again.

BY MICHAEL JORDAN

Sooner or later, everyone hungers for a Z-1. Even me. I think it's a phase you go through, like wanting a new bicycle, craving pizza or lusting after the ash-blonde girl in geometry class. Something about the way the double overhead cams of Kawasaki's venerable inline four bang open their assigned valves has always set my blood to boiling. To me, the motor has the rhythmic downbeat of a steel foundry. And so, when I finally managed to get my hands on a Z-1 several years ago, I was really primed for action, just as we all are upon confronting a legend for the first time.

Like the copywriters say, riding a Z-1 for the first time is like losing your virginity, going into combat and tasting your first beer all in about seven seconds. Nothing can match the surge of adolescent satisfaction you get from putting the motor on true-blue guys on Honda 750s and badass rednecks in '57 Chevies.

But after a while, I realized that riding around on a Z-1 gets to be like belonging to the Marines. Sure, you inspire a certain amount of fear and loathing in the average civilian wimp, but you also realize that nobody but a pro-football defensive tackle hopped up on steroids stands much chance of surviving the experience. Just one soul-chilling wobble in a fast corner, the bike weaving around like a scorpion in a death dance, was enough to deflate my enthusiasm for twisty roads. And getting hammered on the turnpike by the stiff-legged suspension wasn't much fun either. So I chalked up the Z-1 experience as part of my dues as a motorcyclist and moved on to

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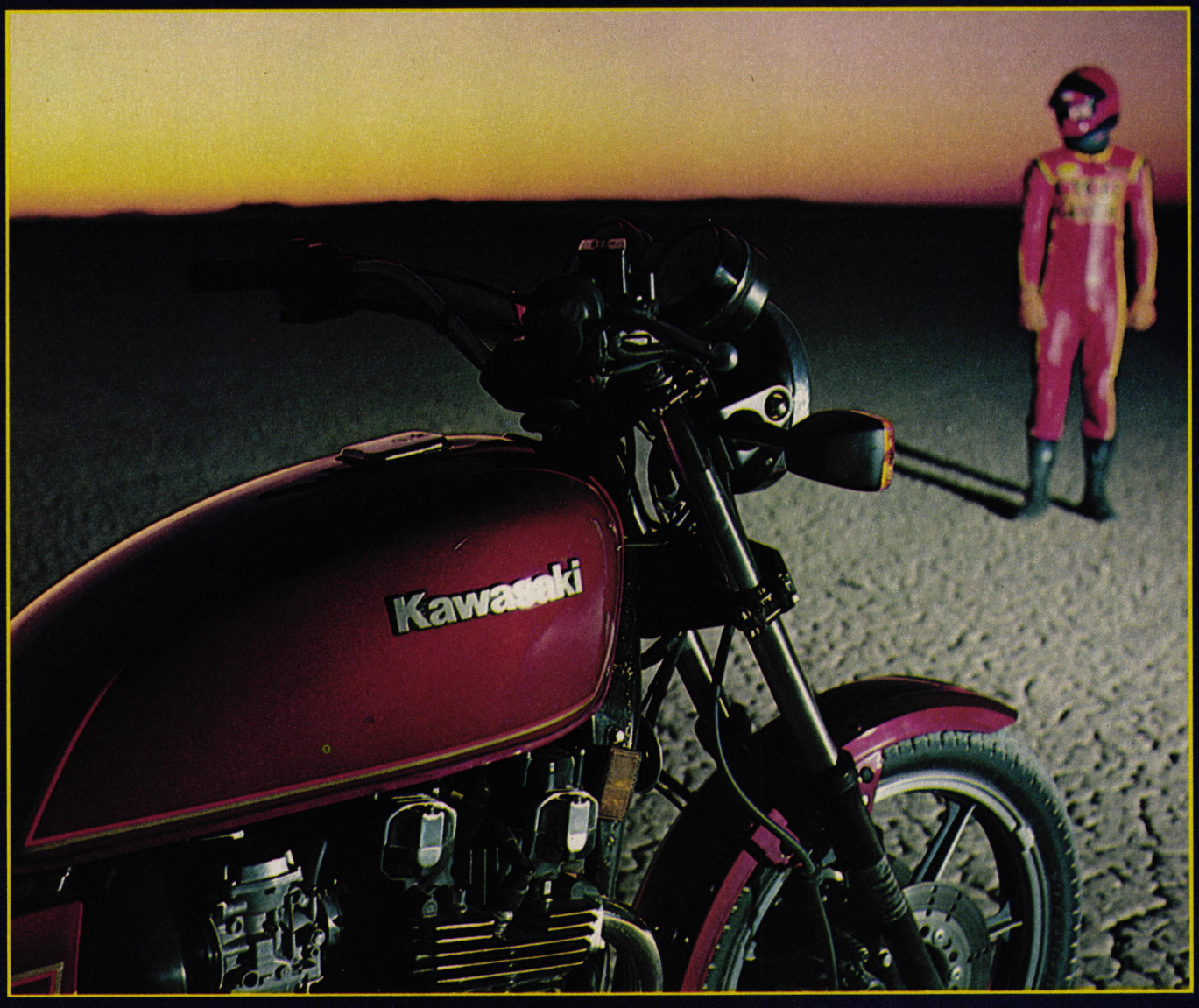

PHOTOGRAPHY © '80 CHRIS EASTMAN

more refined two-wheelers.

That's why, if you're like me, you'll be glad to learn that it's time to return to your roots. The Z-1 is back. It's improved somewhat over the past two years, but now it's ready to sit at the head of the literbike class. Eight years of fine tuning at Akashi have chiseled away the Z-1's rustic tendencies, and what's left is a plain-spoken motorcycle that doesn't flinch at freeways or backroads. It also doesn't flinch at the quarter-mile. Kawasaki now claims that there are 102 ponies locked inside the Z-1 motor. It sounds like it. The hollow bark from the twin exhausts will raise the hair on the back of your neck.

There's nothing flashy about the new KZ1000J (never mind the KZ stuff, we *know* it's the Z-1). It's supposed to be Kawasaki's bread-and-butter hyperbike. The styling is less aggressive. It weighs 37 pounds less. And when you unravel the '81 Z-1's secrets, you find the same dogged allegiance to fundamental verities that produced the stunning KZ750 and KZ550. Simplicity, light weight and the right kind of power account for the rejuvenated Z-1. It's a fully realized modern motorcycle instead of a one-dimensional, high-performance freak. There's no brag to this bike. All it does is deliver the street-bike goods in world-class fashion. Riders of GS1100Es and GS1000Es are going to be looking over their shoulders for Z-1s—or trying to catch up, as the case may be.

No matter how modern the whole package might be, though, the Z-1 legend begins with the engine. The '81 bike is no exception. Kawasaki shrank the KZ1000 engine's bore a half millimeter so the motor would qualify for the FIM endurance roadracing championship, yet factory data reflects a 10 percent horsepower increase—although at the price of a four percent less peak torque. When you drop the hammer on this sweetheart of a motorcycle, the quarter-mile marker appears in only 11.6 seconds. A top speed of 130 mph is only moments away. The engine revs so willingly that it invites you to twist the throttle until the cylinder head blows off its locating studs. And when it comes to throttle response, Kawasaki's reed-valve air injection cleans up emissions so thoroughly, it permits the kind of precise carburetion that makes other EPA-pleasing bikes feel flabby and gutless. Only the need to choke the engine into life all the time will remind you that this is not a pre-1978 non-EPA motorcycle.

Kawasaki coaxes more horsepower from its long-lived four simply by funneling more fuel into the combustion chambers where a higher compression ratio squeezes

Top speed run in progress; 130-mph mark dead ahead

But unlike previous Z-1s, the '81 model goes to work in the corners, too.

Top Speed Detente

• Damn the double-nickel. To hell with impudent speed signs. Top speed is what matters when you have a motorcycle like the KZ1000. After all, every motorcycle deserves to be used to the limits of its capabilities—at least that's how we justify *CG*'s top-speed fever. I went top speeding with our Z-1 test bike November 16. Coincidently, that was the same weekend of the Southern California Timing Associations El Mirage Dry Lake speed trials.

In an age of 85-mph speedometers and Joan Claybrook-types, it's hard to imagine challenging speeds over The Ton. After all, most highways aren't equipped to handle those speeds, and even those straight and long enough generally are X-rayed by quick-draw Smokies.

No, the only place, other than the Bonneville Salt Flats, where you can let your top-speed juices flow like water from a busted main is at El Mirage Dry Lake where speed trials have been held since the Forties. This chunk of alkaline real estate lies in the Mojave Desert just west of Adelanto, California. The SCTA stages six monthly speed trials there every year, beginning in May.

I originally planned to make a top speed run this year at Bonneville on a Suzuki GS1100. The object was to break CYCLE GUIDE's Honda CBX Ride It Up/Ride It Back record of 130.203 mph set last year. But rain washed out the Bonneville foray, and the 1800-mile round trip for Salt II negotiations ended not by default but by deluge. The CBX's record was safe a little longer. That is, until I used Z-1 diplomacy on a cold and windy November day at El Mirage Dry Lake.

Obtaining an El Mirage speed party invitation is simple: show up with bike, leathers, helmet and $25, and you're in. This BYOB affair requires no club membership or affiliation. The two-bit entry fee covers four runs down a 1.3-mile pylon-lined speed corridor, and after each run, you're given a speeding ticket—which doesn't go on your pristine driving record—indicating how fast you went. You compete in specific classes, and to find out your bike's designation, write SCTA, P.O. Box 2729, Fullerton, California 92633 for a rule book. It costs two bucks and you can ask for a Bonneville entry form for this summer, too.

Since this was the final event of the year, it was also my last opportunity to break the CBX's record. I arrived at the 7 a.m. sign-in on the dot, and assured an early starting time for my run. Like Bonneville, you tech your bike after sign-in, then take the next place in the staging lane—it's first come, first served at El Mirage and the Salt Flats.

The first vehicle rolled off the start line just before 9 o'clock, and stirred a small dust cloud that blew to the south, caused by threatening northeast desert winds. After each entrant crossed the finish line, the announcer blared his time over the loud speaker, then introduced the next racer. With at least 45 minutes before my run, I strolled through the pits looking at the bikes, bullet-nose lakesters and high-boy roadsters that give dry lake racing its 32-year-old personality.

Finally, it was my turn. I snapped closed the helmet visor and made sure the KZ engine was plenty warm, since there is only 1.3 miles to build up speed before tripping the 132 foot-long speed-trap lights.

Although there's not much fear build-up while riding a box-stock bike like the Z-1 at top speed, you do get nervous. Most of the pre-race psych-up involves worrying about what numbers await you on the speeding ticket at the end. As I watched the starter before my run, my slightly erratic breathing echoed inside my helmet as a reminder that 130 mph was all that mattered. Casually the starter waved me off.

Your first inclination is to grab a handlful of throttle, but the loose dirt at the start line prevents good traction, so you roll off the line slowly, building to redline in each gear. The powerful KZ engine found 8500 rpm quickly in fifth, too, even with a slight head wind. As the speed crested 100 mph, the Z-1 bobbed and weaved due to the 35-mph Santa Ana winds. But even the bucking winds couldn't keep the engine from pulling 8800 rpm through the traps, good enough for 130.434—a new CG/LSR.

So, although 1980 looked to be a washout for top speed detente, some last minute negotiations by the Z-1 on a barren dry lake in the Mojave Desert saved the day. Peaceful coexistence between the Five-Fivers and the Top Speeders remains.

—Dain Gingerelli

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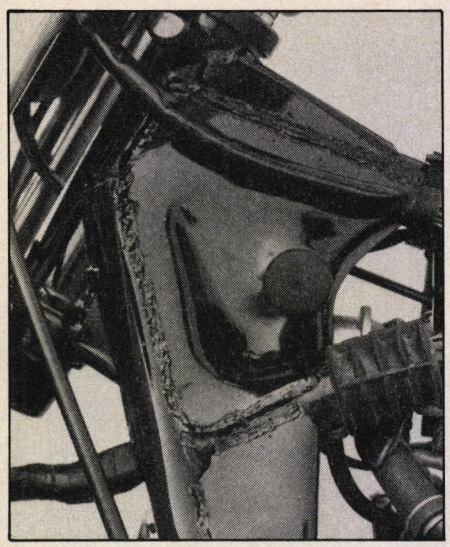
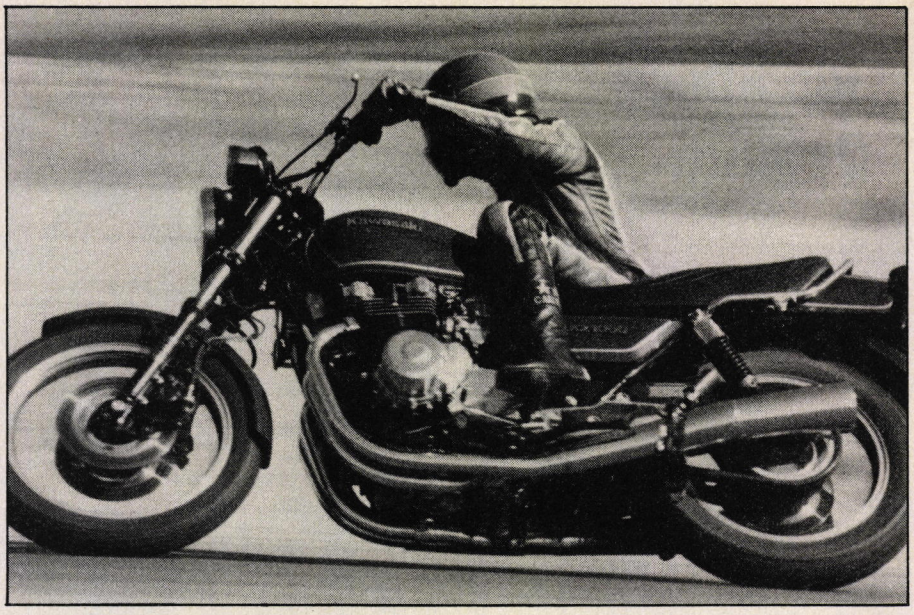


Reinforced steering head

Taking the wiggle out of being fast.



more goodness from every drop. Lightweight, aluminum, 34mm constant-velocity Mikuni carburetors replace last year's 28mm slide/needle zinc Mikunis as the first part of the horsepower program. Then the inlet and exhaust ports are 2mm larger than before. The intake valve is 1mm larger and the exhaust valve is 2mm larger. Valve lift is also increased about 10 percent to further improve breathing. And thanks to the constant-velocity carbs (and leaner jetting), the new Z-1 motor's power boost is accompanied by 15 percent better fuel economy.

Unlike previous Z-1 engines, the 998cc motor churns out power with Mix-Master-like equanimity. Two dual-density rubber mounts at the front of the engine (first used on the 1980 KZ1000 shaftie) eliminate most of the shake, rattle and roll. At the same time, Kawasaki engineers have pared the flab from the paunchy motor's internals for a smoother-spinning powerplant. The crankshaft flywheels have been put on a five-pound diet (especially the primary-drive-side web extension) and the kickstarter has been deleted. Increasing the diameter of the generator preserves plenty of flywheel effect, but now the crankshaft doesn't threaten to abandon ship when you go after the horsepower on the far side of the tach.

Keeping the ponies corraled inside this revitalized engine requires some strategic strengthening of the package. The larger main bearings introduced on last year's KZ1000 engines are part of this effort. So is the increase in height of the cases in the gearbox area for more rigidity.

Most of the general upgrading takes place in the transmission, however. By increasing the final drive ratio (numerically) and reducing the internal ratios, Kawasaki has retained almost identical overall ratios to 1980. But because the new gears spin faster they have to transmit less torque, which makes them effectively stronger. The gearbox's output shaft also has been strengthened, another plate added to the clutch and the Enuma chain upgraded.

Of course, no one has ever questioned Kawasaki's ability to build plenty of horsepower into its engines. Being able to uncork all that power without getting bucked into the bushes has been another thing, though. And wonderfully enough, the new Z-1 whistles into corners with both ends of the bike working in harmony. It strokes up and down on its air-spring fork and shocks with adjustable rebound damping much like a Suzuki. The Bridgestone tires grip the pavement the way a hyperbike's paws should. The steering exhibits the same quickness of previous Z-1s, but now you can use it to change your path to an apex without the bike wriggling in protest.

Once the fork is dialed to 13 psi and the shocks jacked to position No. 4 for both the seven-position preload and five-position damping, the Z-1 will even attack racetracks without hesitation. The crucible of Willow Springs Raceway's Turn Eight, a full-bore, top-gear right-hander, failed to uncover any flaws in the J-model KZ1000 but for a little rear-end imprecision. If you deliberately upset this bike it bobbles more than a GS1000, but up until that point the handling is world-class, a fine balance of quick responses and high-speed cornering stability.

General upgrading of the Kawasaki's frame accounts for much of this sure-footedness. The frame is configured almost the same, but only the engine cradle is identical. Everywhere else, the diameter of the frame tubes has been increased while the wall thickness has been reduced, adding strength while reducing weight. Moreover, the steering head—the weak point of the previous frame—has finally been bolstered by comprehensive gusseting. Two cross-braces add to the rigidity of the top tubes. Other significant details include tapered-roller steering head bearings, needle bearings in the swingarm pivot, aluminum rather than iron triple clamps and larger diameter fork tubes.

In terms of dimensions, the chassis now has an inch-longer wheelbase, 1.5 degrees more rake and 0.47 inches more trail, slowing the handling somewhat. A slight reduction in front weight distribution due to the 15 pounds trimmed from the engine and the 18 pounds dieted from the chassis (by Kawasaki's count) preserves the light touch to the Z-1's steering, though.

All of these changes would be for naught if the bike proved as painful to live with as previous KZ1000s, so Kawasaki concentrated on getting the bike's comfort quotient correct. The result is the most comfortable Kawasaki I've ever ridden. Basically, the bike smothers bumps because the suspension is very soft. With the fork set to seven psi and the shocks at No. 1 on preload and damping, the Z-1 pitches on the Interstate and squats noticeably on acceleration. Still, even though the shocks occasionally bottom out across large bumps, Kawasaki should be congratulated for calibrating a suspension for one-up riding instead of making you live with a bike set up for 500KZ pound loads as usual. The suspension's responsiveness to small inputs is heightened by a reduction in unsprung weight fore and aft, thanks to a decrease in brake rotor diameter and caliper weight (though at the cost of a slightly spongy brake feel). The fork also carries

Engineering Evolution: The Making of a King

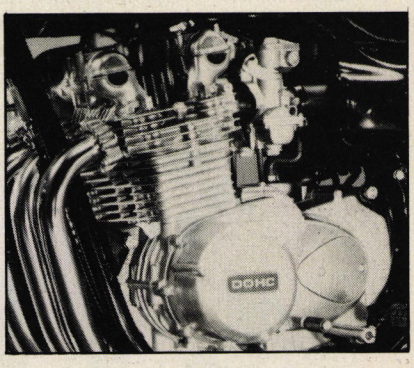
• Performance produced the Z-1 legend in 1973. The engine's introduction of the first double-overhead-cam on a four-cylinder inline engine and the first positive crankcase ventilation for improved emissions characteristics is all but obscured by stories of the bike's 12.5-second quarter-mile capability. What is remarkable about the Z-1, however, is that it has perpetuated that performance legend with virtually the same hardware since 1973. The story of the Z-1 motor since that time is really the record of Kawasaki engineers coming to grips with the engine's tremendous power potential.

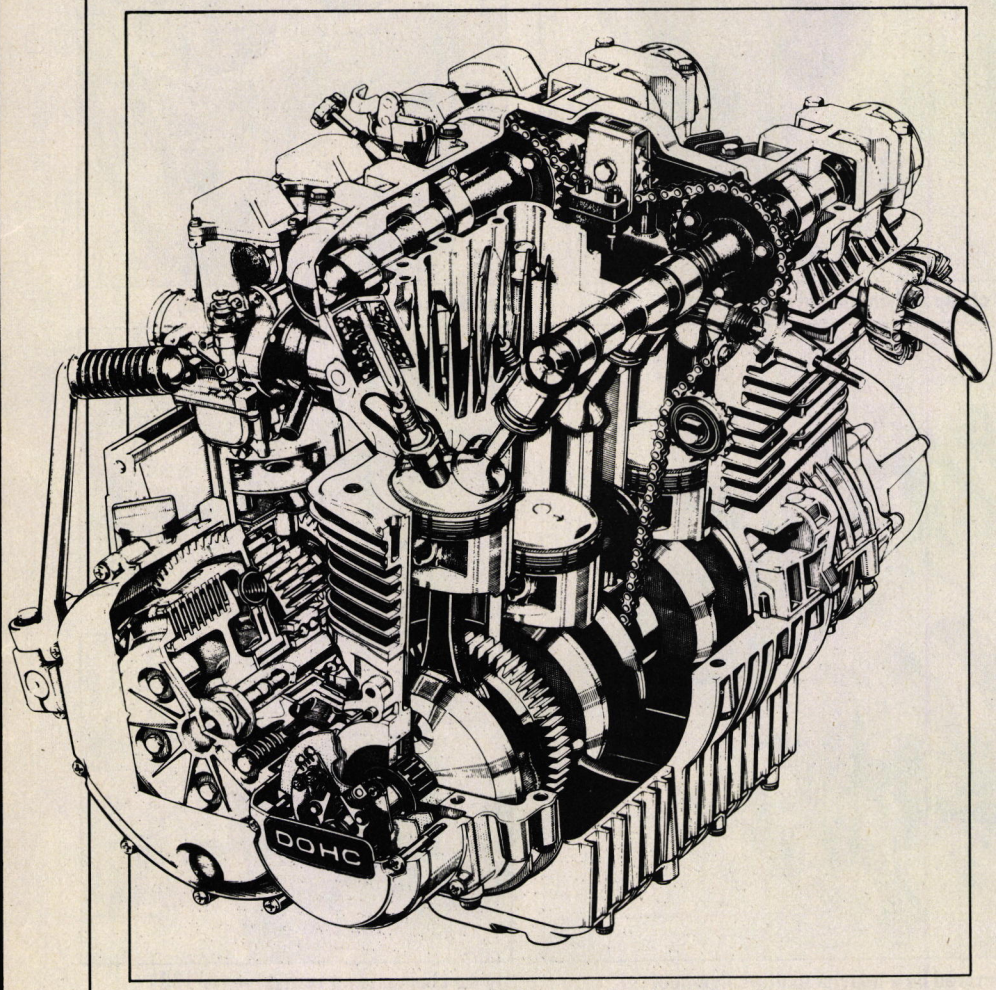
It was clear from the first that chief engine designer Gyoichi Inamura and his staff had produced 903cc capable of more power than most of the ancillary aspects of motorcycle engine design could withstand. For example, an endless roller chain was required to spin the camshafts as well as the rear wheel. The strength of straight-cut gears was needed as well, to transmit power from the crankshaft to the clutch.

Once the first flush of enthusiasm for the Z-1 motor had passed, however, the flaws of its execution became more noticeable. Riders complained of cold-blooded starting, a lack of mid-range power and tremendous vibration beyond 4000 rpm. So for 1976, Kawasaki fitted a number of modifications to the engine to make it more civilized. A switch to 2mm-smaller carburetors produced the missing flexibility quotient while a continuation of the crankshaft balancing begun with the 1975 Z-1B finally resulted in acceptable vibration characteristics. Elsewhere, rubber dampers in the rear hub absorbed some of the bike's driveline snatch, while a complicated air intake system dealt with the onset of more restrictive noise emissions regulations.

The Z-1's popularity with touring riders inspired a more comprehensive engine revision for 1977. The engine's dimensions were changed from 66.0mm x 66.0mm to 70.0mm x 66.0mm, increasing displacement to 1015cc. The compression ratio rose from 8.5:1 to 8.7:1. These changes plus more crankshaft flywheel weight produced the kind of roll-on thrust long-distance riders wanted. Gearing grew taller thanks to a new rear sprocket (two-teeth smaller) to suit touring riders as well. At the same time, Kawasaki engineers attempted to quiet the motor still further with thicker engine cases, an insulated sprocket cover and even more complicated intake passages.

These changes made the Z-1 more acceptable to a broad spectrum of riders, but with the introduction of the Suzuki GS1000, Yamaha XS1100 and Honda CBX in 1978, it became clear that the Z-1 no longer lived up to its sporting heritage. Kawasaki attempted to solve this problem by splitting off a special touring Z-1, the KZ1000 Shaft, in 1979 and returning the chain-drive version to high-performance specification. So the 1979 KZ1000 MkII regained 28mm slide/needle carburetors and shorter gearing, and, thanks to carburetor jetting permitted by the introduction of Kawasaki's reed-valve clean-air system, became a quarter-mile charger again with 12.0-second capability. Meanwhile, more fiddling with crankshaft balance reduced vibration again and an automatic cam-chain adjuster made the motor easier to live with. For 1980, the bike returned with largely the same specifications and the addition of electronic ignition and stronger, 2mm-larger crankpins.





In many ways, the 1981 998cc Z-1 engine represents a full-circle in the motor's development. Once again, quick-revving performance and stunning quarter-mile times have become its prime directive. Yet, it's remarkable that so little about the engine has truly changed since 1973, especially in an environment where engine designs change as rapidly as paint schemes. As it turns out, Kawasaki's loyalty to the motor paid off. Eight years of fine tuning enabled the Z-1 to weather the firestorm of air and noise emissions in far better high-performance shape than any other literbike. Eight years of evolution, not revolution, explains why the Z-1 is still King.

—Michael Jordan

Continued

Charting the Changes

Engine: Displacement reduced from 1015cc to 998cc due to 0.6mm smaller bore. Compression ratio increased from 8.7:1 to 9.2:1 and cylinder head incorporates pronounced squish bands. Ports increased 2mm in diameter. Inlet valve is 1mm larger and exhaust valve is 2mm larger. Inlet valve lift increased 11 percent; exhaust valve lift increased nine percent. Valve duration remains the same, but inlet valves open five degrees sooner and exhaust valves open two degrees sooner. Silent-type cam chain replaces roller chain. Crankshaft flywheel weight reduced. Alternator diameter increased 15mm and output increased, too. Two engine mounts incorporate rubber. Dimensions of engine cases changed. New 34mm constant-velocity carburetors. Valve guides changed from iron casting to sintered metal for ease of production and lubrication.

Drivetrain: Internal gear ratios taller and output shaft strengthened. Final drive gearing changed from 2.333:1 to 2.733:1, but overall gearing remains almost identical. Extra plate added to clutch. Longer shift lever rides in ball bearings for lighter shifting effort. Chain strength upgraded.

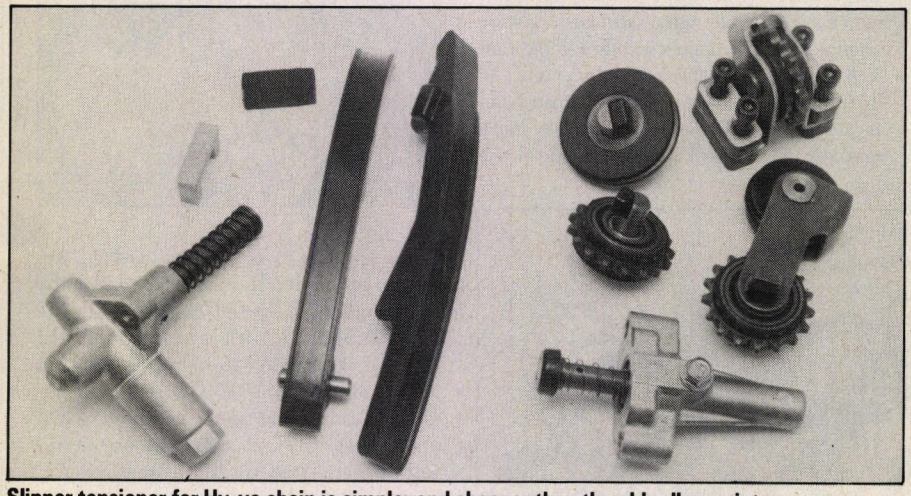
Suspension: Change to air-spring fork with 2mm larger diameter stanchion tubes, softer spring and damping rates. Rear suspension features seven-way adjustable preload and five-way adjustable rebound damping. Rear damping increases in steps of 22 percent, 18 percent, 15 percent and 13 percent respectively.

Brakes: Rotor diameter decreased 14mm. Calipers reduced in weight. Dimension of rear master cylinder decreased for more progressive operation. Lever ratio of front brake lever increased to make front brake more responsive.

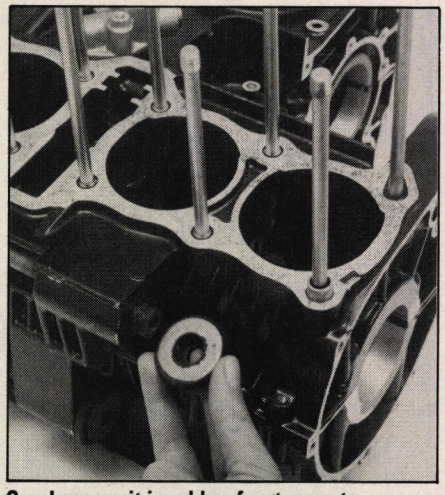
Tires: Dimensions and recommended pressures almost identical, but Dunlops replaced by Bridgestones.

Dimensions and capacities: Frame strengthened by use of larger diameter tubing (though with reduced wall thickness), substantial gusseting of steering head and cross-braces for backbone tubes. Steering head uses tapered roller bearings; swingarm pivot uses needle bearings. Wheelbase increased 0.9 inch, rake increased 1.5 degrees, trail increased 13mm. Weight reduced 37 pounds. Fuel tank increased 3.6 liters.

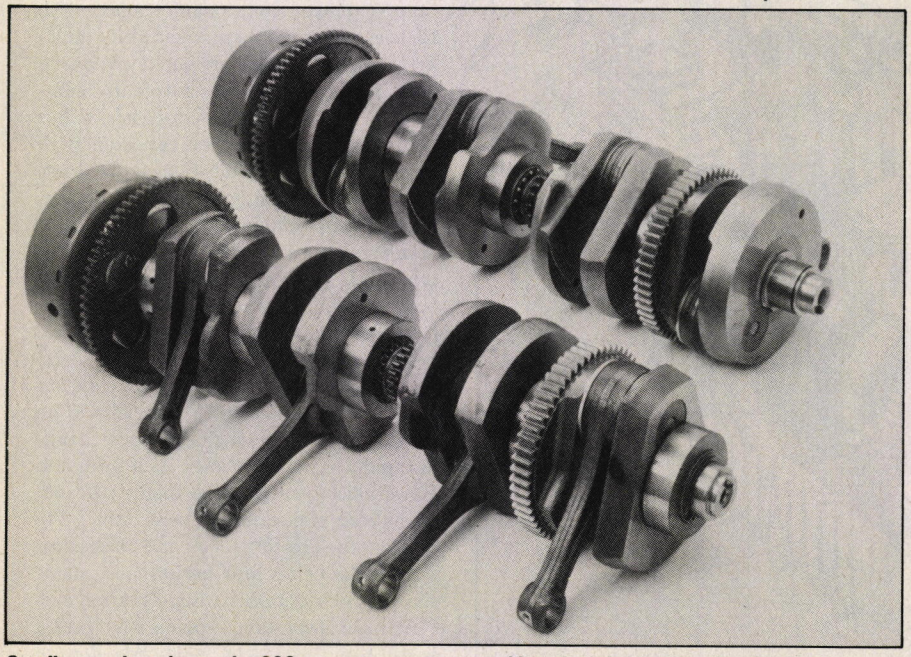
Details: New halogen headlamp. Seat with dual-density foam. New instrument lighting. New fuel gauge. Electrically-operated speedometer, odometer and tachometer. Optional security cable can be stored inside left-hand tube of frame cradle.



Slipper tensioner for Hy-vo chain is simpler and cheaper than the old roller variety

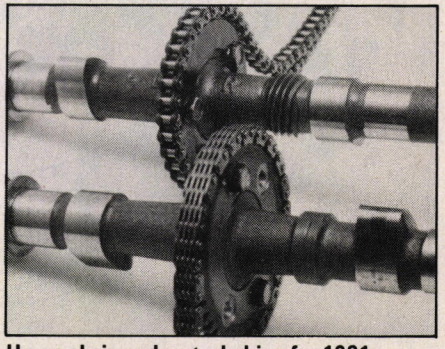


Crankcases sit in rubber front mounts

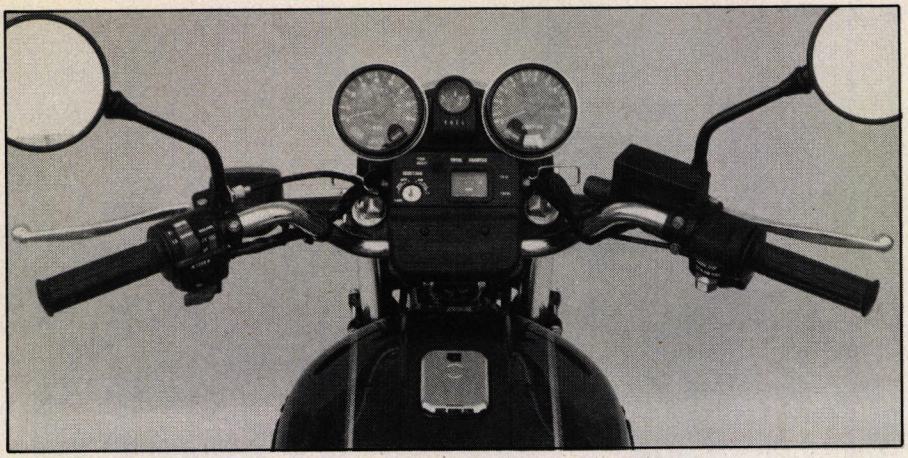


Smaller crank webs on the 998cc motor are countered by a heavier ignition flywheel

Higher crown and compression for the Z-1

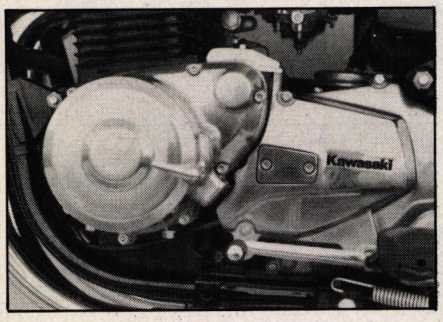


Hy-vo chain and no tach drive for 1981



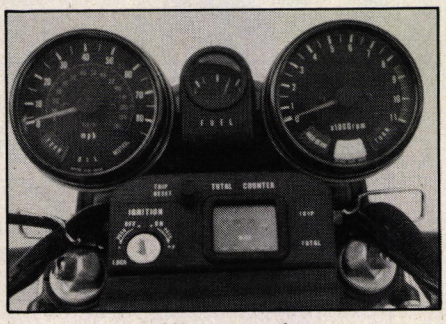
Cockpit shows narrow bar with barbacks, no-fuzz mirrors and soft grips

Elevating the pilot to flight leader status at last.



Restyled cover hides lighter crankshaft

Detailing trims 15 pounds of weight.



Clean, functional instrument layout

But the odometer disappears from view.

two anti-stiction bushings in the current fashion, one at the top of the slider, the other at the bottom of the fork tube.

The riding position and all its components show the same appreciation for rider comfort. The attractive seat has dual-density foam to insulate you from road harshness—but its softness tends to lock you into one position. The low handlebar lets you lean forward slightly into the wind, and a barback at the triple clamp insures you won't have to lean far. The electrically powered instruments have luminescent numerals and are highly readable. The location of the odometer and tripmeter in the center of the dash lets the speedo be more legible, unfortunately the odometer is slightly tilted away from you so you can't read it. A nice touch is the presence of two turnsignal lights, although the turnsignal switch itself is notchy and clumsy to operate. Meanwhile, the halogen headlight produces a bright beam with a good sharp cutoff. The throttle pull is lighter. The grips are heaven. The shift lever rides in ball bearings to lighten shifting effort, although the action is clunky. Finally, the gas gauge's needle is sufficiently damped to be fairly accurate, and it holds its position when you switch off the ignition.

It's this overall commitment to intelligent detailing that makes the Z-1 so impressive. In the past, the big Kawasaki has been something like early Ferraris—built to go like a bat out of hell in a straight line and not much else. But this Z-1 can take you in any direction on your personal roadmap and inspire confidence in your own ability as well as the motorcycle's. Unfortunately, the Z-1 runs the risk of being overlooked, since the fuel-injected GPz1100 should siphon off the sporting audience while everyday riders will cling to the KZ1000 LTD. There might not be a place for bread-and-butter bikes in this country any more.

Even so, I've decided that there's got to be a place for a plain-and-simple, no-brag-just-speed motorcycle that gives you your money's worth every time you climb aboard. It's more than a matter of 102 ponies, too. You see, I still get the same adolescent rush every time I fire up this bike's engine, but I'm also pleased that I can ride anywhere at 50 mpg or 130 mph with equal confidence.

The measure of this motorcycle's accomplishment is the fact that it sums up the lessons of the Seventies—comfort, good handling and a good power-to-weight ratio—so we can live with the Z-1's distinctive speed thrills for the Eighties. For a few years, I thought I'd have to give up my Z-1 roots for good. Now I don't have to. •

Ride Review

• That sound. The subdued shriek from the Kawasaki's exhaust sends a shiver up my spine. Every time I hear it my pulse quickens and I itch to ride the born-again Z-1. I love Z-1s and no matter what they may tell you this year, deep under the plush suspension and GS-Suzuki look, lurks my favorite powerplant, a Z-1 motor.

Kawasakis have always had strong motors. And for those who suspect that softer looks and softer suspension suggest a less serious engine, you can forget it. The motor is stronger than ever before. Only now, the compliant ride helps you enjoy the power. Whether I was chewing up the dragstrip or simply riding to the store, the Z-1 always gave me a charge. It was fast and yet comfortable in a way that Kawasakis never have been before. Yet deep down the Kawasaki is just like it always was. The Z-1 sound thrills me. —*David Dewhurst*

• I'm turning in my GS one-liter membership card, and joining the KZ group. The Z-1 shares all the wonderful qualities of the GS—smooth ride, good handling and exceptional acceleration—with one additional asset as well—it has personality.

I noticed it from the pits at Willow Springs as Jordan circulated the track on the Zee. The engine broadcast a deep, mellow exhaust note—especially near redline—that's been lost in this age of noise-castrating motorcycle legislation. Mind you, the Z-1 isn't illegally loud, or for that matter *loud*. Its pipes just create a mechano-symphony I enjoy.

Noise aside, the 1000's handling, ride and acceleration performance mark it as one of the best street bikes available. And for this pavement-pounder, that's enough to make it the best one-liter bike in my dream high-performance stable. —*Dain Gingerelli*

• It's magic. I can close my eyes for an instant while riding the new KZ1000J and almost imagine I'm back on my '73 Z-1, a bike I dearly loved. Kawasaki has bolstered the reputation of the Z-1 line by building a new 1000 that preserves the character of its famous ancestors.

Even with all the improvements the KZ1000J seems familiar. The engine still looks like a big Kawasaki mill and has the same friendly whistle from the primary drive. Plus, this newest Z-1 does everything I wanted my old one to do; it handles great, rides well and has a real seat.

My old Z-1, wherever it is today, is an even classier classic now that the KZ1000J is back on top of the one-liter heap. Riding the new KZ is like reliving fond memories without being accused of indulging in nostalgia. Now if I get some orange and brown paint . . . —*Riley Tharp*

Continued

Kawasaki KZ1000J

SPECIFICATIONS:

IMPORTER: Kawasaki Motors Corp.
2009 East Edinger Avenue
Santa Ana, California 92711

CATEGORY: street

SUGGESTED RETAIL PRICE: $3500 (approx)

ENGINE

Type ..... four-stroke transverse vertical four
Valve arrangement ..... double overhead camshafts
Bore and stroke ..... 69.4mm x 66.0mm
Displacement 998.6cc
Compression ratio 9.2:1
Carburetion ..... four 34mm Mikuni constant velocity
Air filter ..... paper element
Lubrication ..... wet sump
Starting system ..... electric only
Ignition ..... transistorized breakerless
Charging system .. 12-volt; alternator, voltage regulator, rectifier

DRIVETRAIN

Primary drive ..... straight-cut gears; 1.732:1 ratio
Clutch ..... wet, multi-plate
Final drive ..... # 630 chain (3/4-in. pitch, 3/8-in. width)
Final drive 41/15: 2.733:1

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.64	12.50	6.1
II	1.83	8.66	8.8
III	1.43	6.77	11.2
IV	1.17	5.54	13.7
V	1.04	4.92	15.4

SUSPENSION/WHEEL TRAVEL, IN.

Front air-spring ..... 38mm stanchion tube diameter/5.9 in. (150mm)
Rear ..... 7-way adjustable spring preload, 5-way adjustable rebound damping/4.1 in. (104 mm)

BRAKES

Front ..... dual single-action hydraulic calipers, 9.3-in. (236mm) discs
Rear ..... double-action hydraulic caliper, 9.3-in. (236mm) disc

TIRES

Front ..... 3.25V19 Bridgestone L303A
Rear ..... 4.25V18 Bridgestone G506

DIMENSIONS AND CAPACITIES

Weight ..... 521 lbs. (236kg)
Weight distribution ..... 46.7% front, 53.3% rear
Wheelbase ..... 59.4 to 60.5 in. (1509 to 1537mm)
Seat height ..... 32.4 in. (823mm)
Handlebar width ..... 30.1 in. (765mm)
Footpeg height ..... 13.5 in. (343mm)
Ground clearance ..... 4.25 in. (108mm), at exhaust
Steering head angle ..... 27.5 degrees from vertical
Front wheel trail ..... 3.9 in. (99mm)
Frame ..... tubular mild steel, double front downtubes
Fuel tank ..... steel, 5.2 gal. (19.6/) including 1.4 gal. (5.3/) reserve
Instrumentation .... speedometer, odometer, tripmeter resettable to zero, tachometer, fuel gauge

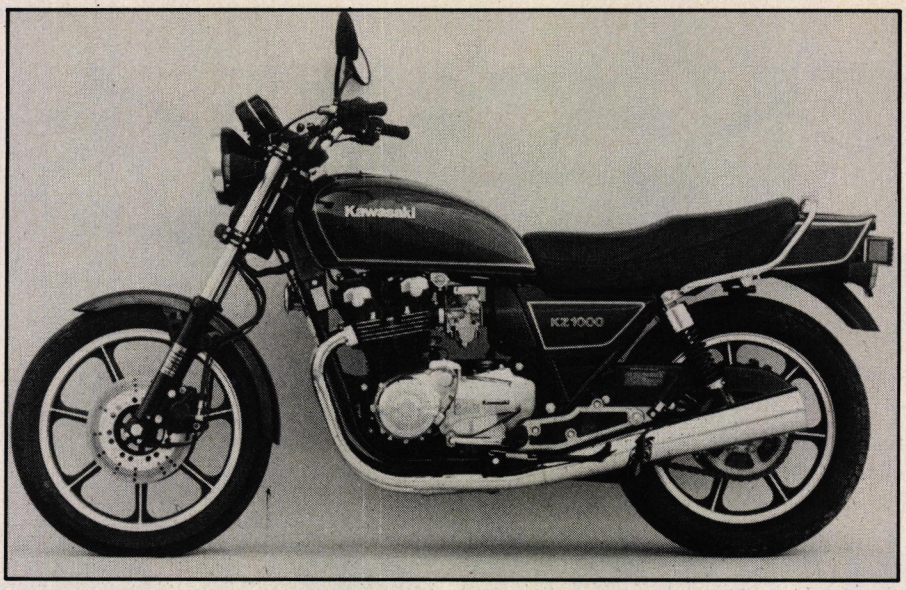
PERFORMANCE

Fuel consumption ..... 30 to 51 mpg (13 to 22 km/l)
Range, maximum ..... 156 to 265 miles (255 to 431 km)
Range, reserve only ..... 42 to 71 miles (68 to 114 km)
Speedometer error, 30 mph indicated ..... 31 mph actual
Speedometer error, 60 mph indicated ..... 61 mph actual
Best ¼-mile acceleration . 11.620 sec., 116.27 mph (187 kph)
Top speed (calculated) ..... 130 mph (209 kph)
Stopping distance from 30 mph ..... 35 ft. (11m)
Stopping distance from 60 mph ..... 135 ft. (41m)

WARRANTY: 6 months

AVAILABLE COLORS: red

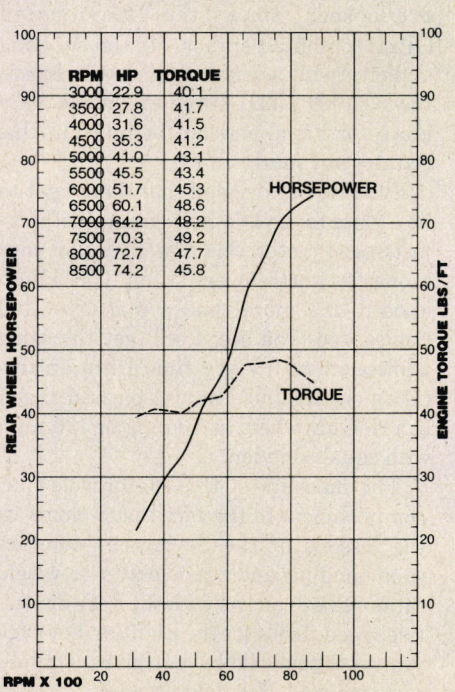
All weights and measurements are taken with machine unladen and fuel tank empty.

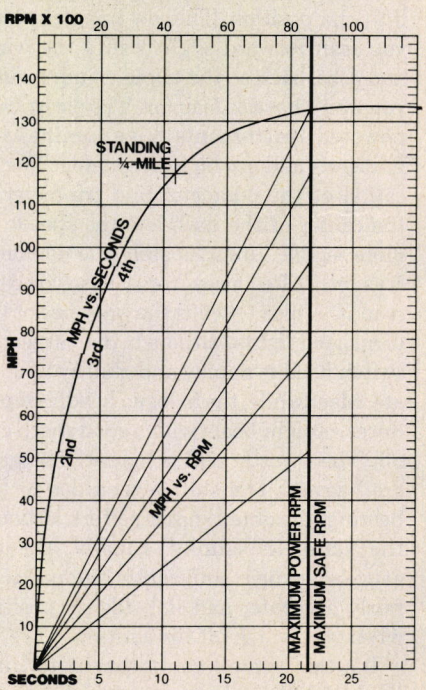


COMPARATIVE TEST DATA:

Make	Quarter-Mile, sec/mph	Top Speed, mph	Weight, lbs	Stopping Distance From 60mph, ft.
Kawasaki KZ1000J	11.62/116.3	130	521	135
Kawasaki KZ1000-79	12.12/111.1	130	548	131
Suzuki GS1000ET	11.98/113.9	136	528	137
Suzuki GS1100ET	11.43/118.3	140	544	116
Yamaha XS1100LH	11.99/113.5	137	562	133
Honda CBX	11.86/114.5	130	555	145

PERFORMANCE:





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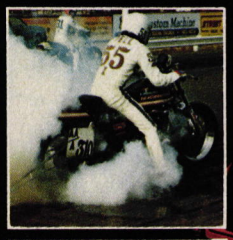

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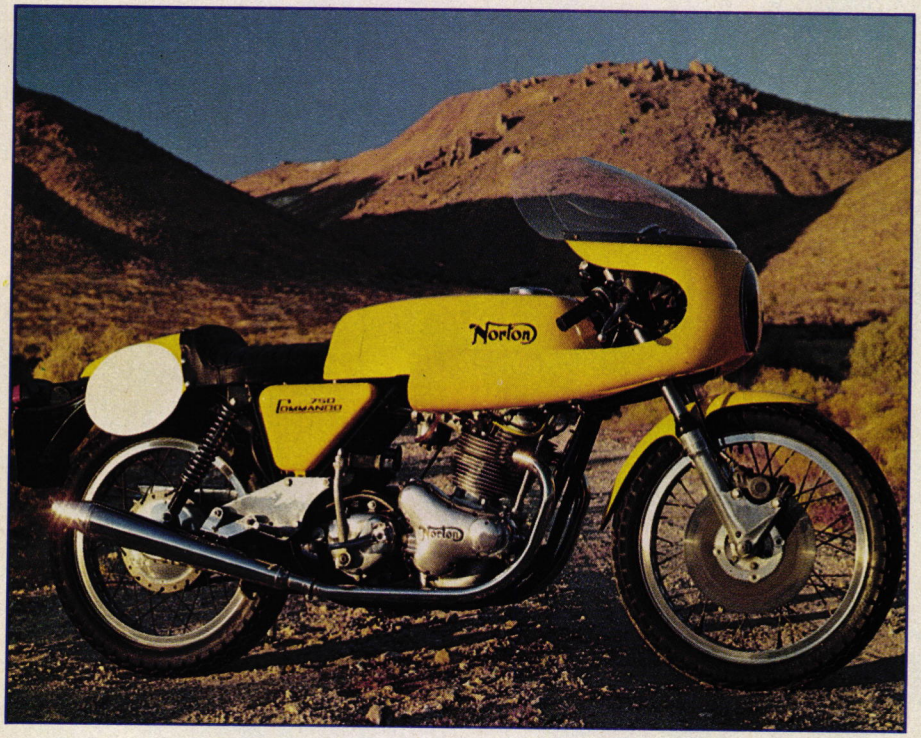
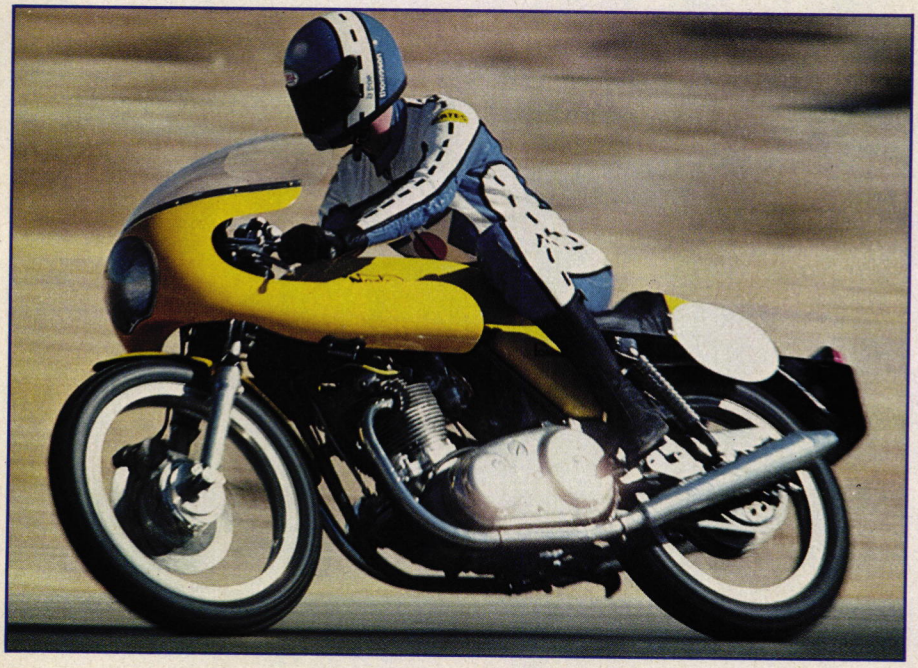
THRUXTON THUNDER:

The Life and Times of the Yellow Submarine

The Norton Commando Production Racer: More than a café racer, less than a GP bike.

BY STEVE THOMPSON





PHOTOGRAPHY © 1981 DAVID CLARK

When some wealthy collector finally builds the ultimate motorcycle museum and designates one wing as the Hall of Influential Motorcycles, it's not likely future visitors will see a Norton Commando Production Racer there. By most of the accepted methods of the definition, the bike simply wasn't that important, especially outside Great Britain. It began life as a race-shop project, was launched as a marketing gimmick and, after a brief spurt of dominance and popularity on the British and European racetracks, went the way of other, suddenly uncompetitive racing machines. Which is to say, into oblivion and numberless pieces.

And yet there exists reason to think otherwise of the bike the British press instantly christened the "Yellow Submarine" on its debut at the Racing and Sporting Motorcycle show in London in a freezing January in 1971. The substance of the reason—bolstered by a healthy dose of 20/20 hindsight—is that the Commando Production Racer exists as one of, if not *the* ultimate development of the motorcycle format the British were to stamp as their own after World War II. This Production Racer—a box-stock, genuine factory-built device, not some "prodified" aftermarket machine—could well be considered the Ultimate British Vertical Twin.

Assuredly, there are Triumph Bonnevilles being sold as new even today. But even the most wide-eyed Bonnie fan will have to admit that actual development of that machine stopped well before the workers' co-op began building the bike in the mid-Seventies. Only Norton, of all the British bike manufacturers, attempted to come to grips with the inherent vibration of a big OHV vertical twin, and thus only Norton's Isolastic-framed Commando, designed by Bob Trigg and launched in 1968, can be said to have dragged the venerable old vertical twin into the postwar world. Thus by the ineluctable process of logic, if the Commando street bike was the last word in vertical twins from Britain, then the Production Racer was the exclamation point at the end of the sentence. It was the fastest, best-handling, lightest and quickest Commando you could buy.

A few performance figures from its era underscore the last point dramatically. A stock Commando SS (a high-pipe version sold to Americans looking for "street scrambler" machismo) consistently knocked off 12.6-second, 100-plus mph quarter-mile times in magazine tests of the day. And when Tony Murphy took a '72 Production Racer to Willow Springs, for-

mer Norton factory rep Brian Slark reports, he got the bike around in less than 1:40. Considering that the lap record at the time—the *absolute* lap record, Slark further notes—was around 1:36, the motorcycle had to be taken very seriously indeed as a racing machine.

In England, nobody had to be told. Built in batches by Peter Inchley's famous "Long Shop" race department team (the name comes from the long Nissen hut the shop called home, a building dating from the time Thruxton Circuit was Thruxton Aerodrome, home to a B-17 bomber wing of the Eighth Air Force), the Production Racers were at first hard to come by. By late 1971, the Marketing Department at Norton had allocated enough to the race shop to insure that any production-race grid in England would show at least a dozen bikes—and more often than not, that one of them would win the race. Some of this was due to simple saturation—nobody else at the time built a race-ready production racer for the class—but most of it was due to the quality of Inchley's work.

To turn the street bike rolling-chassis that got delivered from the Andover factory to the Long Shop into a Production Racer, Inchley and development engineer/factory racer Peter Williams had fine-tuned the original Wally Wyatt project racer of 1969 considerably. Making use of the Long Shop's proximity to the Thruxton circuit (as in: It's in the front yard, mate), Williams and Inchley used run-it-and-see development as well as the tried and true engine tweaks known to work on the old Atlas 750cc engine. The few bikes that emerged from the Long Shop (estimates vary from less than 100 to less than 200 and documentation might as well be nonexistent) proved the worth of the work, because in 1971, '72 and most of '73, they virtually owned their class in England and Europe. Only the arrival of the Kawasaki Z-1 and the curing of the Honda CB750K1's handling ills finally put them on their trailers.

The bike pictured here is typical of the breed. Built in October 1971 and sold in January 1972, it incorporates most of the midcourse corrections made to the Production Racer line. The frame, shocks, swingarm and bottom half of the engine are standard Commando parts, but everything else has the Long Shop stamp on it. First are the tires; Dunlop K81 TT100s were standard, but instead of the street bike's symmetrical 4.10x19s front and rear, the racer got a 3.60 front section as a result of Thruxton fiddling. The street's steel rims gave way to Akront WM3 40-spoke alloy wheels, and the front drum of the Roadster was replaced by a Campagnolo-and-Lockheed leading-caliper disc, the iron disc being bolted *and* splined to the front alloy hub.

The fork valving was hand-worked using the stock sliders and tubes, again based on racetrack experience. And the stock Isolastic mounts were discarded in favor of new, less resilient mounts. A built-up alloy head-steady replaced the soft stock item. Further chassis changes included the obvious visual ones: the hand-made alloy footpeg plates, the pegs them-

Continued

Ten Years After: Riding the Norton

• Steve Thompson and I are matched more like salt and pepper shakers than bookends. He's settled down to married life and novel writing, while I'm single and don't mind an occasional night on the town. Our attitudes about riding—and crashing—vary, too. When Thompson falls, he stops the world and thinks about what happened. I just dust off my leathers, get back on and ride into the sunset.

But one thing brings us together—motorcycle roadracing. We both were christened at AFM club racing in the late Sixties and early Seventies. SLT went to Limeyland and wound up his career aboard a British twin duking it out with the blokes on the short circuits, while I remained in Southern California to seek fame and glory on RD250 and RD350 production racers.

Now, almost 13 years later, Thompson and I occasionally retire to the war room for cigars and brandy, where we recall our good old days in racing. And Thompson *always* finds time to mention The Norton. It was at one of these moments-recalling-yesterday's-glory that he got too deep into a verbal turn and invited me to ride the Norton Production Racer he had purchased and restored for his coffee table.

There was no question that I'd accept; ever since I saw my first Norton Production Racer gliding through the turns at Orange County International Raceway in 1970, I've wanted to assume the prenatal position behind its fairing. Reggie Pridmore piloted the Norton racer that day at OCIR, and I watched from the pits as he charged to catch the TT-style Commandos of the Norton Gang. It was ballet versus brute force, a world far removed from this 20-year-old racer—especially since nobody would entrust me with a 750cc twin at that point in my racing career.

But Thompson's restored Production Racer filled the ten-year gap. I got my chance to ride The Norton at Willow Springs Raceway on a warm, sun-soaked November afternoon.

"Now, the shocks are beat, and don't take it over 7500 rpm," Thompson lectured while I put on my gloves. Funny, I thought, redline is 7000, why is he giving me permission to tap it out an additional 500?

"That's okay, Steve, I'm not going to run it ten-tenths, I just want the feel of what it's like to ride one of these relics." His face crinkled at the word, but of more concern to him was the phrase ten-tenths, racer lingo for going balls-out every turn.

The starting procedure is unlike any RD350 I've ever raced. Tickle the carbs—one at a time—until gasoline trickles out. Then reach under the seat to switch on the ignition, fold up the right peg, move the kickstarter arm out, find TDC, give it slight throttle, then kick. After the third kick, Thompson politely suggested we bump start it. Two kicks later, it fired.

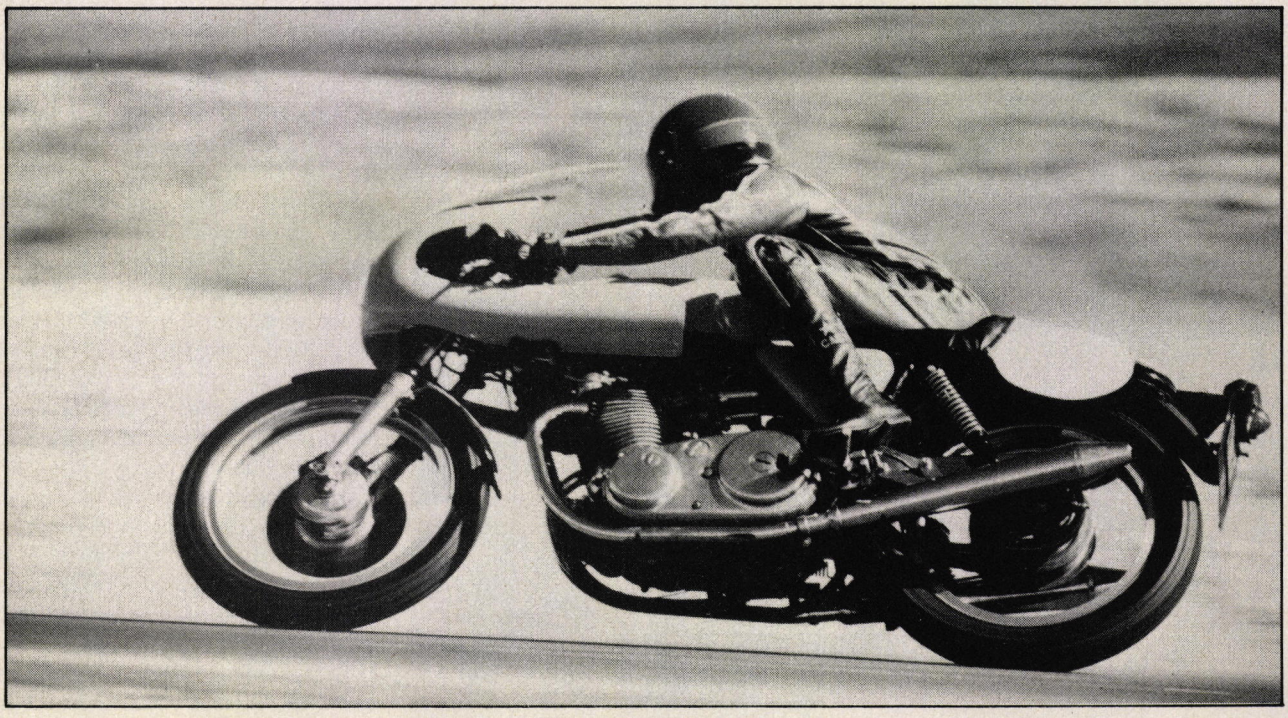
I thundered out of the pits, and was slightly annoyed by the engine clatter echoing off the windscreen. When I draped myself over the long, yellow gas tank, I assumed the traditional British racing position like it was molded just for me. Pity, I thought, that nobody gave me a chance to race one of these beauties. Turn One interrupted my ruminations.

The Norton peeled into the turn after two downshifts and was stable, save for a rear tire wag caused by the sagging Girlings. I assumed the Mike Hailwood "knees-out" style around the fast Turn Two sweeper, and suddenly the Good Ol' Days began oozing into my RXM-1 Simpson helmet. It helped me better understand why SLT always talked so fondly of The Norton at our cigar-and-brandy benchraces.

As the laps passed, I learned more about big bike racing in the early Seventies. If you entered a turn too hot, in all likelihood you couldn't rely on the brakes for salvation. Instead, you chose between a bail into the haybales or a toe-scraping scramble for the apex. There's plenty of compression braking to help slow down, though, and once into the turn, engine torque is available at a twist of the stick.

I returned The Norton to Steve in one piece. He wore a mask of guilt and relief when I rode into the pits, probably reflecting on one of my previous Dave Aldana-inspired get-offs that never seemed to bother or rearrange my bones, but always altered the alignment of the motorcycle. There's one thing I didn't hand over to him in the Willow Springs pits, though: the memory of Pridmore navigating his yellow racer around OCIR ten years ago. Reggie and Steve, I'm a member of the club now.

—Dain Gingerelli



selves (hand-turned, of course, out of solid aluminum), the exhaust pipe bracketry and even the pipes, which were standard items hand-cut and rewelded to tuck in tightly against the frame for cornering clearance. Only the class-required equipment was left on the bike; speedo, tach, lights, horn, stoplight switch. Not a single creature comfort unnecessary to winning races was left aboard.

The fiberglass fairing, five-gallon (U.S.) fuel tank and solo-seat-cum-numberplates were designed in-house but built by local industry; Mike Jackson, currently Sales Director of Andover Norton Ltd. believes the pieces were made by Avon, only a few miles from the Andover factory.

Likewise, with the exception of the valve springs (which came from S&W in America), the engine pieces were made either in Thruxton or nearby. The head was alloy, gas-flowed and machined with no squish bands, a configuration which, with the slightly domed forged pistons, gave a compression ratio of 10.25:1. Together with the special phosphor bronze valve guides and seats, the larger intake valves and large steel manifolds and 32mm Amal Racing Concentric or remote-float GP "Matchbox" carbs, the package was good for 70 hp at 7000 rpm. A Boyer electronic ignition kit was offered as an option, as was a five-speed Rod Quaife gearbox, which had much closer ratios than the four-speed racing unit that was standard.

By the time the Yellow Submarines made their debut, many aftermarket manufacturers had already outfitted Commandos, of course. The huge late-Sixties British café racer market demanded it, even if the real-racer contingent didn't. So there were quite a few Dunstall Commandos and others to give the Submarines a run for their money. But the hours of Thruxton testing paid off, and the factory product quickly earned a reputation as hard to beat.

The genesis of this reputation wasn't merely the lack of suitable competition. The traditional Commando qualities were elevated to their highest pitch in the Submarine, and it was really those qualities that set it on the trail to victory. Because of the engine's vast reservoir of torque, the Commando pilot could dial his speed as though his twistgrip were a rheostat. Further, the standard Commando's fundamental agility was sharpened by the chassis tweaks of the Submarine until the bike was so stable and responsive that it could be ridden anywhere on the track, whether on a long straight or off-camber decreasing-radius turn. The generous (for the time) suspension travel gave the Production Racer a soft ride almost unknown

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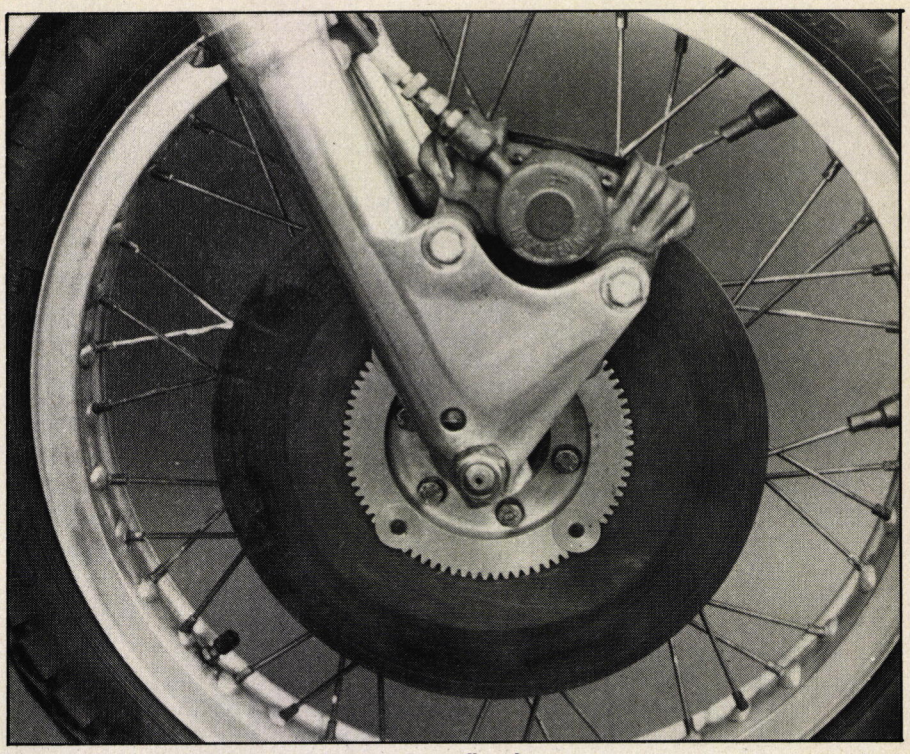


Splined disc carrier, Akront alloy rim, cast-on caliper lug

Hard-stopping hardware indigenous to Norton Production Racers.

Thompson knifing through a deluge in Riches Corner, Snetterton Circuit, March 1972

One of the world's best wet-track racers from the country that invented rain.

The Norton Gang

• While English racers were fascinated with the yellow Production Racer in 1970, the Colonials were in the midst of a roadracing rebellion. Rather than accept the traditional clip-ons-and-fairing approach to asphalt racing, the rebels elected to production race Norton Commandos with high bars. The virtues of these bikes were the same as the Submarine's, though, and they are also part of the Commando racing legend.

The ringleaders of the Roadrace Rebellion were George Kerker, Jumpin' Jack Simmons and Bill Manley—the Norton Gang. These three rode as a team under the Norton-Villiers banner and wore Jack Simmons' shop colors. And never have three teammates ever been so competitive. Recalls Simmons, who now lives and works on a small piece of land outside of Perris, California, "I'd rather have been beaten by any other racer than by George or Bill." This rivalry ended, though, with the drop of the checkered flag, for all three were good friends off the track. Manley, in fact, got his TT and half-mile tutoring from Simmons in the early Sixties, when the two raced on AMA dirt tracks before their days with the roadracing Norton Gang.

And it was also TT-style racing that gave Jumpin' Jack his nickname when he became a member of the Norton Gang in 1969. He raced two Commandos: the production bike supplied by Norton-Villiers, and his ex-TT bike for GP events, which sported a high bar and a mini-fairing. He actually slid both bikes through turns, scrubbing off speed with tires rather than brakes.

Kerker's riding style was more refined, and would *almost* get the nod of approval from the Production Racer loyalists. He knew the value of being smooth, and rarely dropped his inside foot when cornering. He later roadraced as an AMA expert and did fairly well, using his tuning knowledge to develop an aftermarket exhaust pipe that still bears his name.

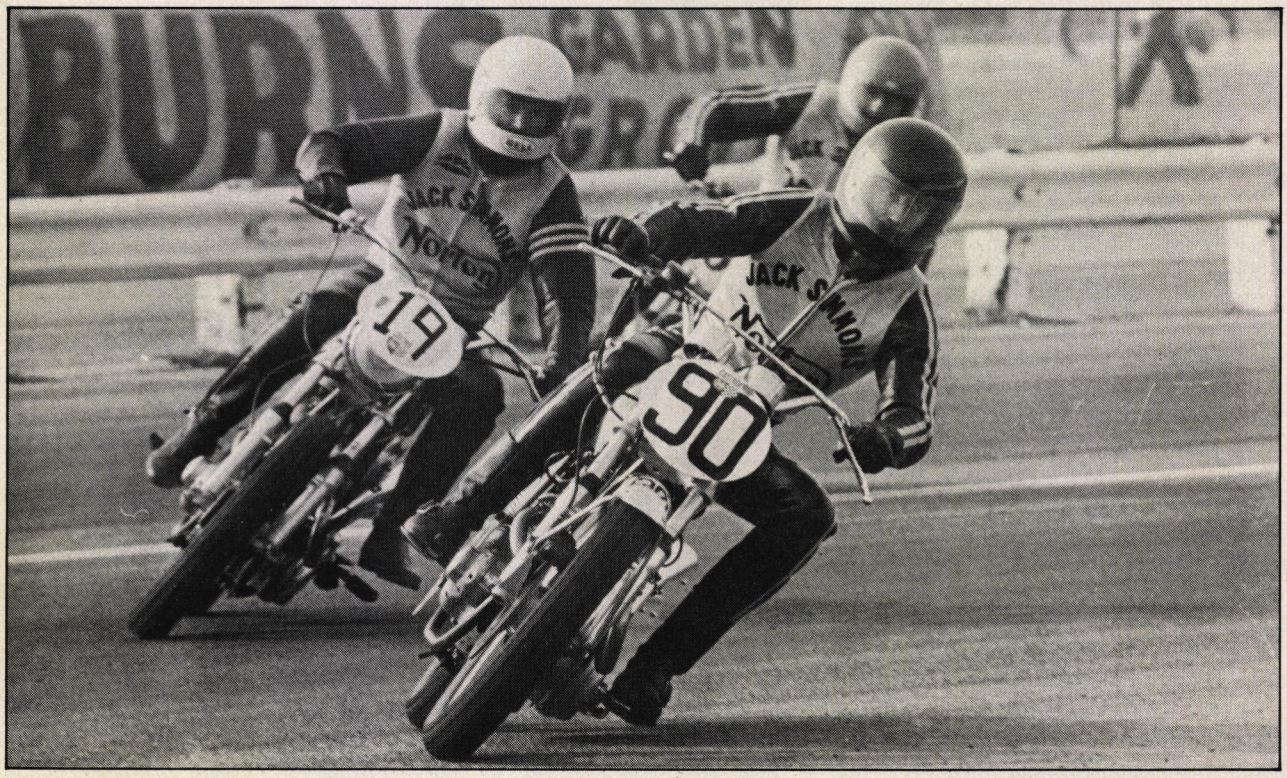
Simmons says that of the trio, Manley probably had the most natural talent for racing motorcycles. However, Manley's bike didn't have the straightaway juice to stay with Kerker's bike, and only through superb riding and a little two-on-one tactics—Simmons and Manley versus Kerker—did he win his first race.

But despite their rivalry and the horsepower difference between bikes, the Norton Gang always put on a good show. Kerker, for one, placed a very high value on showmanship, and as unofficial Gang leader, suggested the three remain bunched together during a sprint race—but the last lap was winner-take-all. "That was okay by me," reflects Simmons, "it made for easier racing. Until that last lap!"

It was Kerker who also gave the dauntless trio its name. And as Simmons recalls, Kerker began a promotional program that carried the Norton Gang's exploits way out of the pits and into every avenue of the motorcycle industry. Said Simmons: "He'd be telling people about how fast we were, then I'd step back a few paces and shake my head 'no.' But George was new to racing—I'd been doing it since 1949—and he honestly thought no human being could go faster than we were going."

Still, on the OCIR dragstrip-converted-to-roadrace course, few were as fast as the Norton Gang. Yamaha of Canada found out the hard way when it sent former Grand Prix rider Mike Duff down for the California Grand Prix. Duff was sitting in a secure second when Simmons worked his way up from last to overtake Duff and his TR3 on the outside of a turn. Simmons used his inside foot for additional pavement contact, and to this day casually recalls the incident: "Duff got a little excited about me passing him like that."

But hard riding—TT-style or the more conservative apex-clipping—was the Norton Gang's trademark. The team only dissolved in 1972 because Norton-Villiers could only afford to support Dave Aldana's AMA flattrack program. Kerker continued to race for a few more years, Simmons retired and Manley dabbled in speedway. But those who were in the grandstands at AFM races in 1969 and 1970 remember the Norton Gang as the first major effort by a motorcycle manufacturer in club roadracing. Further, the Gang proved that the Isolastic chassis was, indeed, a winner around turns. The Norton legend benefited. But perhaps most important to the Gang itself, they proved that Yanks could win at roadracing—highbars and all. —*Dain Gingerelli*



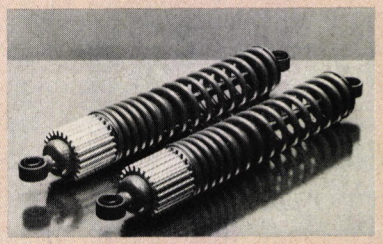
among racers of the day, allowing the rider to concentrate on racing rather than just staying aboard. At long tracks—notably the Isle of Man—the fatigue-reducing aspects of the Commando played a decisive role, for coupled to the plush suspension and superbly comfortable riding position were the Isolastic engine mounts, which sopped up virtually all the bad vibes the bike's vintage engine offered up. As a result of this honing of the standard Commando's best characteristics, the word got to Europe's (and even, to some extent, America's) street riders that the Commando won its races not because it was hand-grenade quick or ridden by win-or-die kamikaze pilots, but because it was somehow fundamentally different from all the other Britbikes that had soldiered on with vertical twins in the past.

Which was, from the company's point of view, what the whole exercise was all about. Confronting a swelling tide of Japanese "big bikes," Norton's management tried to cover as many marketing bases as possible; there were touring Commandos, "street-scrambler" Commandos and even the awful and unlamented Hi-Rider, which was nothing more than a Commando Roadster with ape-hanger handlebar and kicked-up seat, all led by a tiny headlight. But as the Japanese took over more and more of the market, only the "sporting" aura clung successfully to the Commando. And the factory sources we spoke with agreed that the legend of the Commando's roadholding and sport-sense derived directly from the Production Racer's brief dominance on the racetrack.

Considering that the Commando lived for seven years, most of them in the face of ever-more exciting Japanese machinery, a new BMW series, the all-new Ducati vee-twin 750s, the Laverda SFC and following café bikes—in the face, in fact, of the biggest motorcycle explosion since WWII—the contribution of the racer might almost qualify it for inclusion in the Hall of Influential Motorcycles. But only almost.

Had the Commando lived—indeed, had Norton itself lived as a major manufacturing concern of big-inch motorcyles—a niche would be certain for the Yellow Submarine. But since Norton, like BSA, Triumph and all the rest of England's long-gone manufacturers eventually succumbed to self-inflicted wounds, the Hall will not see a Commando Production Racer. Instead, it will find its way into the garages of curio collectors, its epitaph a simple one.

"Here rests the Norton Commando Production Racer. Beautiful, fast, British—and too late." •



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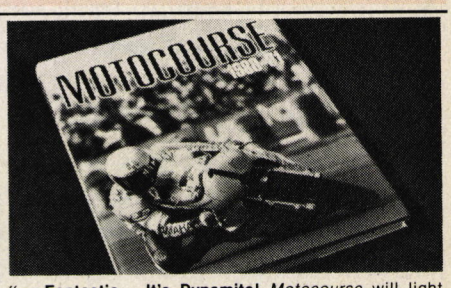

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Street & Dirt

Naturally, we don't confine our interest to one kind of motorcycling. For instance, we think there's nothing in all the world more fun than doing cross-ups with the spectacular MX machinery available today. Not to mention dodging trees and rocks in enduros. In fact, if it's something you can do with a motorcycle off-road, we're sure to do it.

Which doesn't mean, of course, that we don't work the other side of the trees. Whenever we can, we turn our lively and exhaustive street tests into staff rides, blitzing the twisties and eating up thousands of miles in touring. Because we love street motorcycles as much as dirt bikes.

Just like you.

Big & Small

Some people seem to think you can't have fun on anything that doesn't have a handful of cylinders and eyeball-squashing power. And some people think that God meant Man only to ride bikes with seven-speed gearboxes and a teacup-full of engine. We're not like either group. We can have fun testing and writing about anything with two wheels and a motor, from crypto-chopper to minibike. So our entire staff is totally conversant with the whole motorcycle spectrum, from tiddler to terror. And consequently, whatever your preferences in displacement and power, you'll find them within the pages of CYCLE GUIDE.

Because fun isn't measured in cubic inches.

Riding & Writing

Ours is a staff of expert riders. Qualified to ride or race almost anything. But it's not our ability to turn hot laps that makes us proud of our work. It's our ability to turn hot licks on the typewriter.

That's because while there are a lot of good riders around, there aren't many who can turn the experience of riding into something others can share and delight in. Or learn from. So we've been very selective about who writes for us, making sure that riding skill is matched by writing skill. The result isn't Shakespeare, but we think our ways of taking you along with us over the jumps, across the apexes and through the woods on two wheels are better than anyone's in the business.

Including Shakespeare.

Them & Us

There are a lot of motorcycle magazines on your newsstand. Some specialize in dirt bikes, some in street bikes, others in choppers. Some are very nice to flip through in idle moments. And like you, because we're full-on motorcyclists, we flip through them too, occasionally even finding something we like to read. But like you, we think there's a world of difference between an "occasional" magazine and one that delivers the kind of excitement, enjoyment and insight we'd feel good about spending our money on.

The occasional magazines are still in the rack. You're holding the one that we know delivers the goods every month.

CYCLE GUIDE

HARD RIDERS WITH THE RIGHT LINES.

25 YEARS OF RACING HAS HELPED US BUILD MORE THAN A REPUTATION.

THE SECA 750.

At Yamaha, we don't build great motorcycles to win races. We win races to build great motorcycles.

For 25 years, we've been very successful at it.

This year, we've done it again.

Introducing the motorcycle we've both been waiting for. The incredible new Seca 750.

FIRST TO THE FAST LANE.

As high performance motorcycles go, this one goes like you wouldn't believe.

Its 748cc in-line four is lighter than any production 750 engine. And, to the complete despair of the competition, narrower as well. With more power than you ever thought possible.

This combination of maximum power and minimum bulk further combined with an ultra-smooth, fully-enclosed shaft drive makes the Seca as near to a perfect performance motorcycle as anyone has ever come.

And, if we had stopped there, we could have taken our rightful place in the Motorcycle Hall of Fame.

LAST TO THE GAS PUMP.

We went on to make the Seca 750 as frugal with fuel as it is generous with power. With a remarkable new development called the Yamaha Induction Control System (YICS for short).

Utilizing an ingenious system of sub-intake ports, the air/fuel mixture is literally blasted around the wall of the combustion chamber, distributing the entire mixtu evenly for complete burning.

By eliminating inefficient, wasteful burning, YICS can result in an average fuel savings of 10%. With no moving parts. And absolutely no loss of power.

THE YAMAHA TRAVEL SERVICE

When it comes to suspension travel and handling, the Seca 750 is in a class by itself. Again.

Because up front, you'll find our exclusive Anti-Dive Suspension System—until now, the exclusive property of road racing machines.

During hard braking, a unique valving

Rear view mirror(s) standard equipment.
Always wear a helmet and eye protection.

mechanism restricts the flow of oil, and thus travel, in the forks, reducing front end "dive." What this does for handling—not to mention smoothness and comfort—is a revelation.

THE BRAINS OF THE OUTFIT.

After all that, it will probably come as no surprise that the Seca 750 is the only two-wheeler than can think.

Thanks to the amazing new Computerized Monitoring System located in the instrument panel.

Unlike motorcycles of ordinary intelligence, the Seca sports an LCD display, connected to sensors throughout the bike, which lights up to report any malfunction in brake fluid level, engine oil level, battery fluid level, headlight, taillight, brakelight and sidestand position.

So while the competition is still out there in the 20th century, Yamaha has been busy in the 21st.

BRAINS AND BEAUTY.

Of course, it can't have escaped your attention that the Seca 750 is pretty nice to look at, too.

The trim, sculpted styling extends from the generous 5-gallon tank along the swept-back side covers, all the way to the neat tail fairing with its integrated taillight. And notice the covered handlebars. Smooth, clear and uncluttered.

For looks, performance, handling and the sheer exhilaration of riding a motorcycle, no other bike even comes close to the Seca 750.

Except one.

THE SECA 550.

For those of you who prefer a mid-size, mid-price high-performance machine, we offer the Seca 550.

Its 528cc DOHC in-line four is actually a bored and stroked 400. So, if the Seca 750 engine is narrow, the 550 is practically invisible.

And if you remember with mouth-watering clarity Yamaha's legendary RD400, now EPA retired, you'll have some idea of the performance you can expect from the Seca 550.

The new Yamaha Seca Series for 1981.

Powerful proof that in the race to build the ultimate high-performance street machines...we won.

YAMAHA

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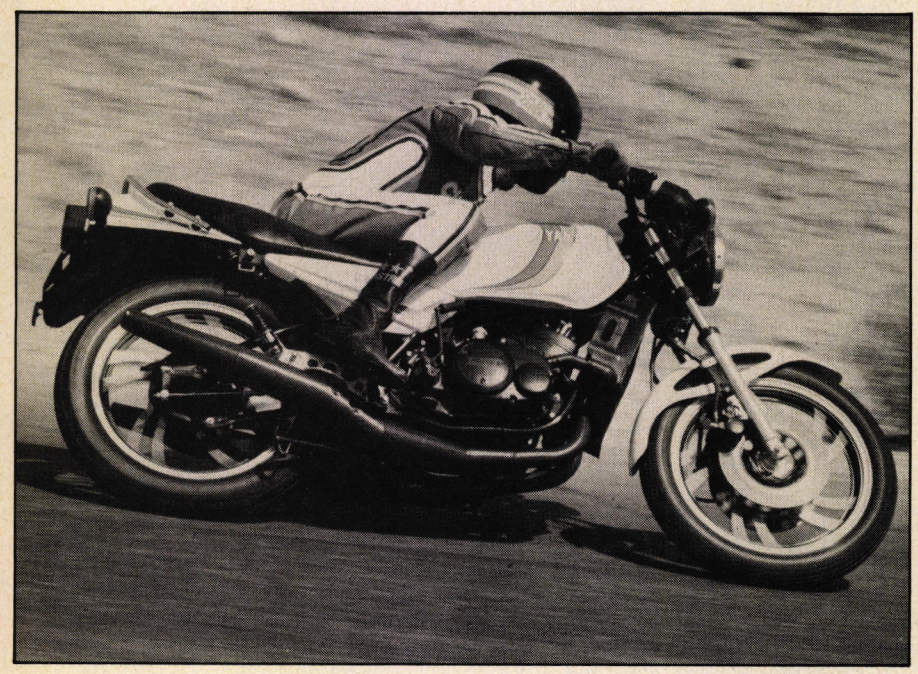
BETTER THAN STOCK:

Yamaha RD350LC

A squirt of power for the waterpumper.

• Yamaha's RD350LC is a wonderful bike. It magically blends TZ thrills with street bike equipment to offer one of the most exciting rides in motorcycling. But the little waterpumper is not perfect. The looks and the handling may be good, but a valley of depression in the midst of the power curve makes the LC a hassle both on the street and on the track.

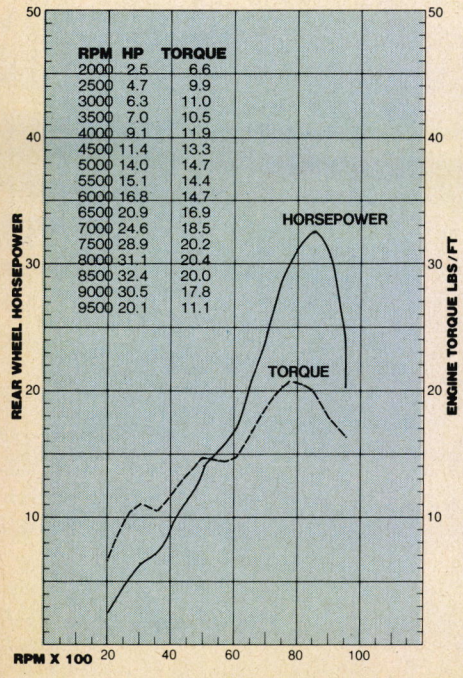
Yamaha has been aware of the LC's problem since the first water-cooled twins hit the street in the middle of last year. Sales were even halted in Europe for awhile to forestall the deluge of customer complaints. Only now have the engineers come up with a solution. The secret cure is simply a new carburetor jet and reed valve. And once we spent ten minutes installing these new parts, our test bike was utterly transformed into the perfect street-racer we knew it could be.

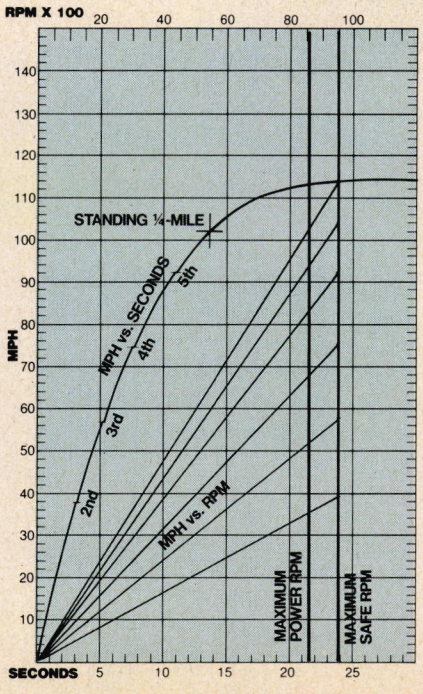


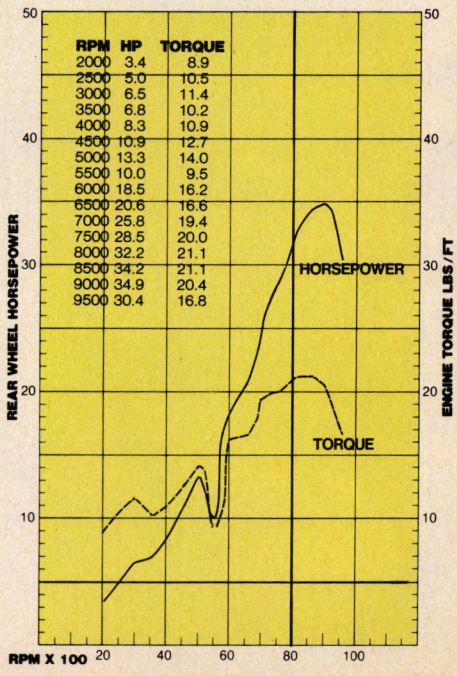
The problem that confronted us with the stocker was the presence of what felt like an extremely narrow powerband. Since our lap times at Willow Springs Raceway were very close to 430cc Production class records, we accepted the narrowly defined powerband between 6500 rpm and 9000 rpm at first. After all, such a small spread of power isn't uncommon in race bikes. The thing that annoyed us about the LC, however, was the abrupt drop in power outside these limits. To roll off the throttle at all meant risking a bogged-down engine.

In the end, we were so dazzled by the LC's other features that we dismissed this problem as the price that had to be paid for a real two-stroke street-racer. Only when we put our test bike on the dynamometer did we realize the severity of the problem. Compared to the steep but smooth increase in power that the RD400F's dyno curve shows, the LC's dyno chart revealed an incredible chasm at 6000 rpm, an astonishing 10-hp drop in power. This glitch was more than just a jetting problem, for spark plug readings indicated that the carbs were in the ballpark. We were stumped until Yamaha issued a service bulletin about the LC shortly after our story went to press.

Only two changes were recommended by Yamaha. Surprisingly, one was the main jet size. More significant was the reed valve. We speculate that testing showed the reed petal's mate-







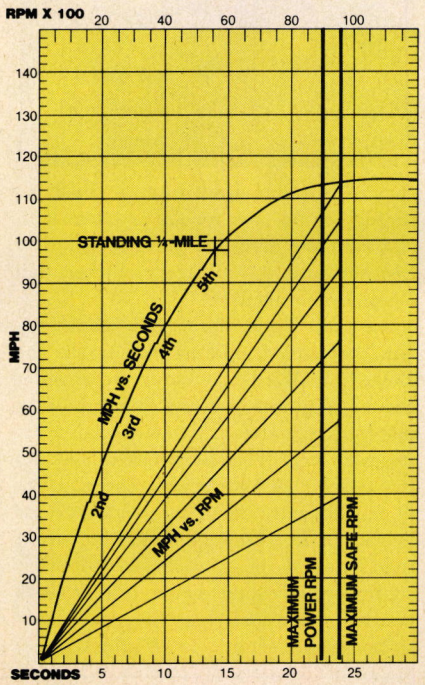
rial did not perfectly match the resonant tuning of the intake tract. This in turn produced what appeared to be mid-range richness that did not show up in plug readings. But with the stock reed cages replaced by part no. IV013610-00 and the main jet altered from a No. 160 to a No. 140 per Yamaha's recommendations, the motorcycle's performance was completely changed around.

Keeping the power percolating was far simpler, no matter what rpm registered on the tach, because the engine pulled predictably from 2000 rpm. No longer did the motor fall on its face at 6000 rpm. As a result, the engine felt stronger throughout the rpm range. The boost in mid-range power alone drastically improved quarter-mile times. On just its second pass, the rejetted LC lopped nearly six tenths of a second from its previous best time, recording a heart-pumping 13.226 seconds at 101.01 mph.

An improvement in dynamometer figures came as no surprise after this gratifying performance on the dragstrip at Orange County International Raceway. Midrange had improved dramatically, just as expected. Elsewhere in the power curve, though, the LC's power production was virtually the same, which goes to show how a little fine-tuning can drastically alter a motorcycle's real-world performance. Just two changes had produced what might have been an entirely new machine. Suddenly, the LC felt much closer to the TZ-model from which it had been cloned in concept if not in detail. Better yet, the RD350LC became a better street bike, one that wouldn't frustrate you every time you encountered a stop sign or a slow 30-mph corner.

These changes, in fact, altered our entire view of the RD350LC. We still think it's one of the most exciting bikes you can put on a racetrack—but we also think it belongs on the street as well. Which makes the LC one of the few repli-racers you really *can* live with.

—David Dewhurst



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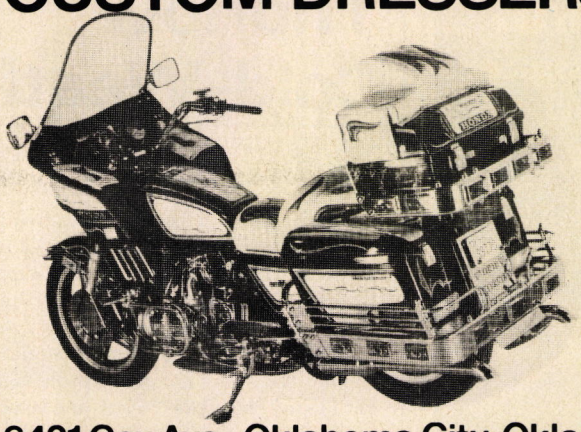

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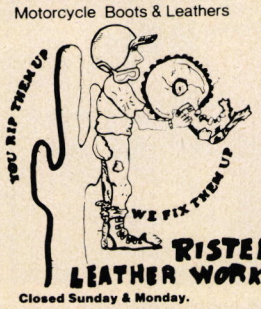

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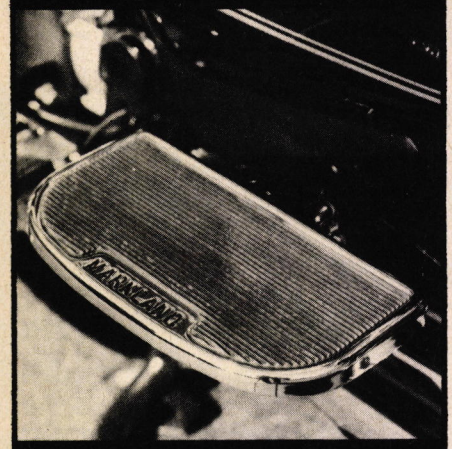

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PRODUCT EVALUATION:

Thurlow Cold-Weather Gloves

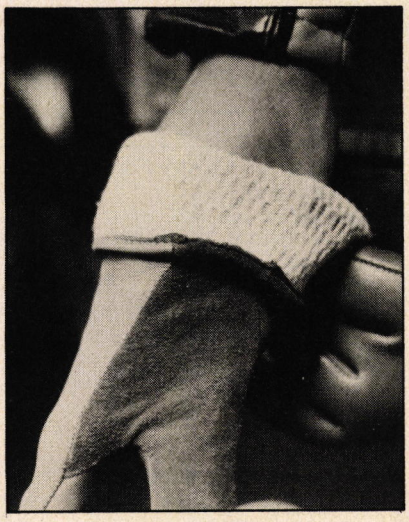
Stylishly deflecting the cold.

• One thing I don't like about cold-weather riding gloves is the bulk that's stuffed into them. The fingers usually resemble a quintet of mini-sleeping bags marked "left" and "right" more than motorcycle gloves. And thanks to all that insulating material to contain body heat around your digits, it's hard to feel the bike's controls and levers.

Ideally, a good cold-weather glove should keep your hands warm and afford some manual dexterity. The Thurlow-Manxman cold-weather glove is like that. These low-temperature gloves look exactly like the warm-weather Thurlows evaluated in our April 1980 issue, but they have a layer of knitted-cotton for insulation.

The first thing you notice when slipping on a pair of Thurlows is the snug fit. And because of that, you can operate the controls of your bike without playing the bundle-of-warmth feel-game associated with most heavy gloves. The single layer of cotton knit isn't the best agent for trapping the warmth, but if you want optimum protection, chances are you're willing to accept the bulk and buy a pair of foam-fillers.

On the other hand, the Thurlows do a more-than-adequate job of letting you feel the controls because they're not bulky. As long as the thermometer doesn't dip below about 55 degrees, your hands remain comfortably toasty. I view these gloves as stylish hand-warmers suited more for brisk, clear spring and fall morning rides than damn-the-cold winter weather-fighters.



Thurlow's thermal underwear

Longjohns behind the short gauntlet.

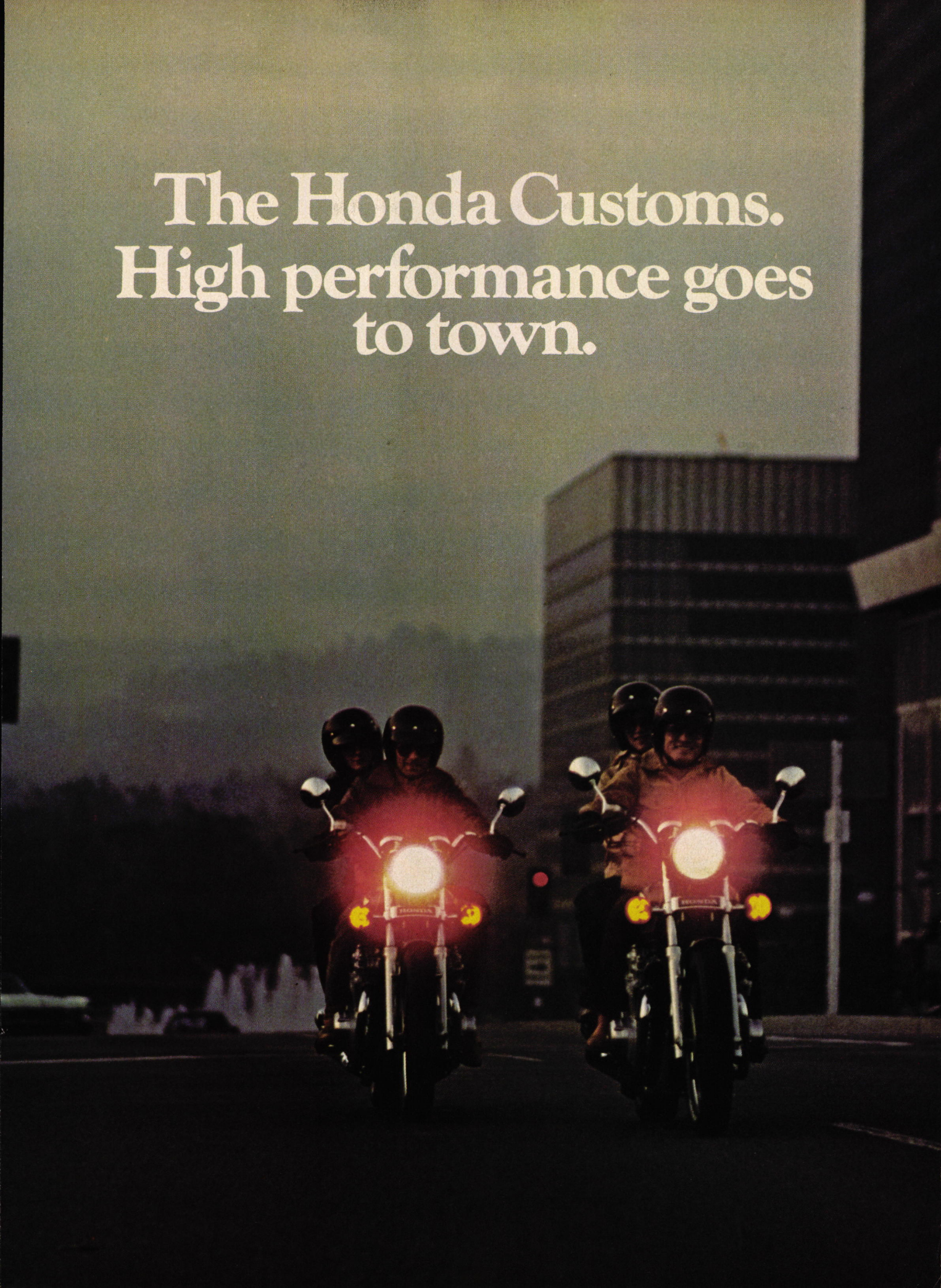
There are other interesting features incorporated into the design to fend off the cold air. For instance, the gauntlet reaches above your wrist, so your jacket sleeve tucks inside it. And the basic design of the glove uses two large pieces of deerskin, so there's only one major seam edge to permit air to sneak in. The seams are sewn with the leather excess on the inside of the glove, so what you see is a smooth outer surface, which also affords better feel of the controls and switches. And in the event of a crash, there's less chance the concealed stitches will grab the pavement and rip apart.

The Thurlows look stylish, even though the fingers remind you of unlinked sausages. A strip of chamois lines the thumb and inner section of the gauntlet, which not only looks good but doubles as a faceshield de-mister for damp-weather riding.

Like our Thurlow-Manxman gloves tested in April 1980, they come with a one-year warranty on workmanship, and the stitching is guaranteed for life, provided

they're not damaged from a crash or through racing. For repairs or alterations, just ship the damaged glove to Thurlow Leatherworld, 4807 Mercury Street, San Diego, California 92111.

Bavarian Cycle Works, 385 8th Street, San Francisco, California 94103, sells the gloves by mail order, and says you can order custom-fit gloves or select an off-the-rack pair ranging in sizes extra-extra small to extra-extra large. The ready-made gloves dip into your wallet for $49, while the made-to-fit pair cost extra. The Thurlow gloves come in black or deep brown, but more important than style and color, you can feel your bike's controls while riding. And in cold or warm weather, that's something you always want to have a handle on. —*Dain Gingerelli*


The Honda Customs.
High performance goes
to town.

Enjoy the performance before you get to the show.

Sooner or later, high performance has to leave the race track and make it in the real world.

And there's no time like the present.

Introducing the 1981 Honda Customs.

From their rakish forks to their sleek teardrop tanks to their stepped saddles, these five motorcycles may well be the most beautiful machines on two wheels.

And perhaps the most luxurious.

But underneath the shine and the polish, you'll find the engineering and the technology that Honda perfected in Europe's Coupe d'Endurance, America's Superbike championships and on some of the fastest road race circuits in the world.

This is what high performance looks like when it's all dressed up.

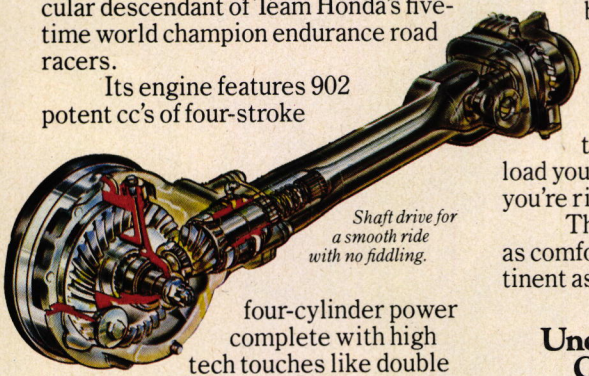
And ready to go.

Get your motor running.

Before you press the electric starter of the CB900 Custom, make sure you're completely ready.

Because this is Honda's most powerful Custom, a direct and muscular descendant of Team Honda's five-time world champion endurance road racers.

Its engine features 902 potent cc's of four-stroke four-cylinder power complete with high tech touches like double overhead cams, multiplate cam chains and a forged one piece crankshaft with Kelmet bearings.



Shaft drive for a smooth ride with no fiddling.

There's also maintenance-free transistorized pointless ignition for a hot spark and a high performance oil cooler to keep the engine cool.

The CB900 Custom's Pentroof™ head uses four valves in each cylinder, instead of the ordinary two, for better breathing at high rpm's. And instead of rocker arms, the intake and exhaust valves are actuated directly by the camshafts.

Honda has also fitted the four 32 mm constant velocity carburetors with an accelerator pump. Roll on the throttle and it injects fuel into each carburetor's venturi.

The result is simply smooth predictable power.

No lag, no surges.

It's all ride now.

But just because the CB900 Custom is descended from racers doesn't mean it rides like one.

The engine and footpegs are mounted on rubber for a smoother, more luxurious ride.

The graceful pullback handlebars let you lean back and relax instead of hunching forward, while the low, low saddle sinks you down to less than 31 inches off the ground.

New leading axle forks with dual Syntallic™ bushings and a needle bearing swing arm pivot are standard.

And front and back, you'll find air-adjustable suspension that lets you tune the CB900 Custom's ride to the load you're carrying and the road you're riding.

The result is a motorcycle that's as comfortable going across the continent as it is across town.

Unchain this Custom.

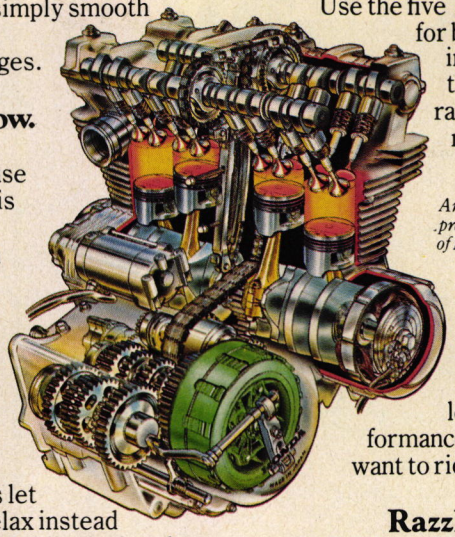
Obviously the goal of anyone who owns a motorcycle like this is to spend less time fiddling and more time riding.

So instead of a chain, the CB900 Custom uses a shaft drive system that requires virtually no scheduled maintenance.

There's even a bonus. In between the rear wheel and the smooth five-speed transmission is another transmission—the Select-Range™ sub-transmission.

Working with the regular gearbox, it gives you a choice of two different overall gear ratios—low and high.

Use the five speeds in low range for better acceleration in city riding. Or use the five speeds in high range to improve gas mileage while touring.



An engine design proven on some of Europe's tracks.

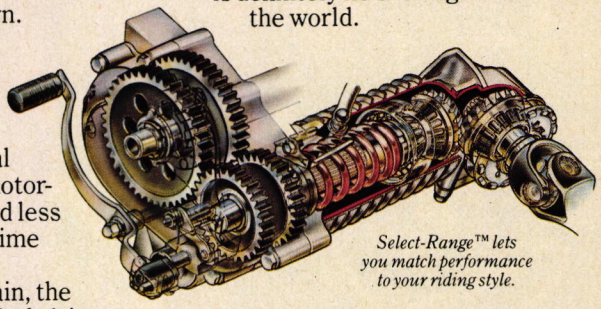
Because this is the first 900 cc motorcycle that lets you tailor its performance to the way you want to ride.

Razzle dazzle.

When all is said and done, however, the CB900 Custom is more than a machine. It's rolling sculpture.

Its lean ComStar™ wheels and fat tubeless tires with raised white letters make it look like a muscle car on two wheels. The handlebars sweep back to the classic teardrop tank which flows down to the low slung saddle.

Its metallic two-tone paint is so rich and so deep you'd swear it was an expensive custom finish. And it's obvious from a single glance that there is definitely no shortage of chrome in the world.



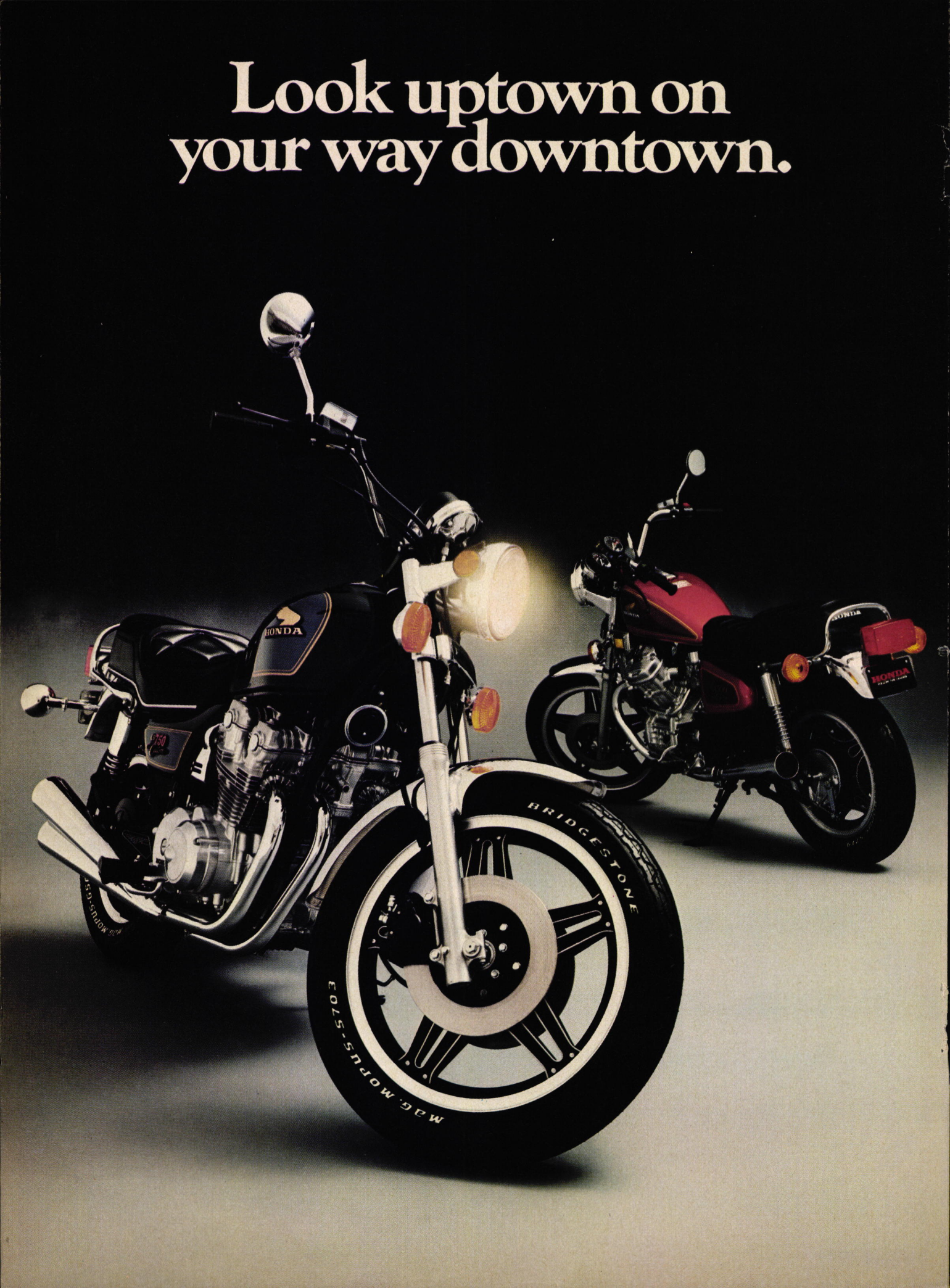
Select-Range™ lets you match performance to your riding style.

The 1981 CB900 Custom.

Lots of motorcycles can take you to the movies.

Only one is a moving experience all by itself.

Look uptown on your way downtown.



There's more than one way to build a high performance motorcycle.

So there's more than one way to build a Custom.

Whether you're attracted to the classic engineering of the four-cylinder CB750 Custom or the advanced technology of the V-twin, liquid-cooled, shaft drive CX500 Custom, there's a Honda waiting for you.

Why so many choices of Customs?

Because the Customer is always right.

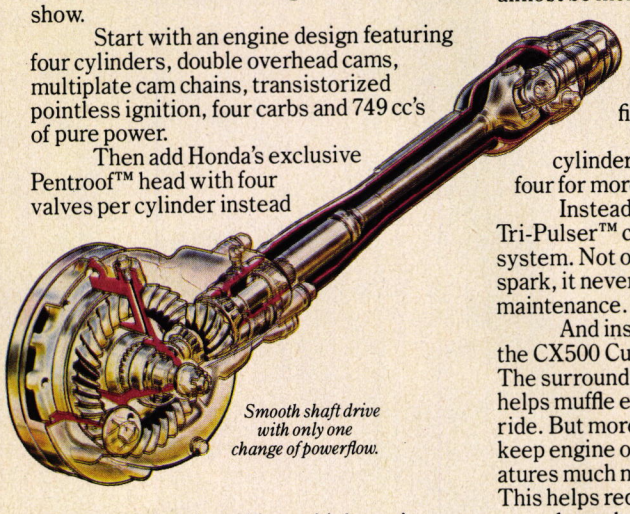
Send your pulse racing.

The CB750 Custom is a technological cousin of Honda's superbike racers.

Which means it's all go as well as all show.

Start with an engine design featuring four cylinders, double overhead cams, multiplate cam chains, transistorized pointless ignition, four carbs and 749 cc's of pure power.

Then add Honda's exclusive Pentroof™ head with four valves per cylinder instead of two for better breathing at high rpm's.



Smooth shaft drive with only one change of powerflow.

The result is enough power to carry you down almost any road in the country, from black top to superhighways.

And no matter how the road twists, curves, dips or bends, the CB750 Custom can straighten it out without working hard.

Thanks to air-adjustable suspension and leading axle forks up front and VHD™ shocks and a needle bearing swing arm pivot in back.

Worth a second look. And too quick to get one.

As great as the CB750 Custom works, it looks even better.

The seat's been redesigned to make it plusher and lower. Now it's only 29.9 inches off the ground so you sit down in the machine, not on it.

The teardrop tank and side-covers feature a unique finish. Honda's special metallic two-tone paint.

The ComStar™ wheels are reversed and highlighted for a richer, more civilized look while the big fat tubeless tires with their raised white letters look just the opposite.

Very aggressive.

Even the sound of the CB750 Custom is exhilarating because at the back of the bike is something only the biggest Honda Customs have.

Four megaphone pipes to tell the world what you're riding.

And what they're missing.

Even NASA doesn't have this one.

The technology in the CX500 would almost be more at home in science fiction than it is in real life.

Instead of four cylinders, it uses two in an advanced 80° V-twin configuration.

Instead of two valves per cylinder, its Pentroof™ heads use four for more efficient combustion.

Instead of points, it uses the Tri-Pulser™ capacitor discharge ignition system. Not only does it produce a hotter spark, it never, never requires maintenance.

And instead of air-cooling, the CX500 Custom uses liquid-cooling. The surrounding water jacket helps muffle engine noise for a quieter ride. But more important it helps keep engine operating temperatures much more consistent. This helps reduce engine parts wear due to heat distortion and extends the life of the engine.

And considering Honda's reputation for durability, that's quite a statement.

Can you adjust to no adjusting?

With most motorcycles, every few thousand miles you have to risk getting your hands dirty adjusting the chain.

Not with the CX500 Custom.

Because instead of a chain, there's a shaft drive putting power to the pavement.

It's smoother than a chain and never needs tightening.

It is also, by the way, more efficient than some other shaft drives because it only changes direction once on its way back to the rear wheel.

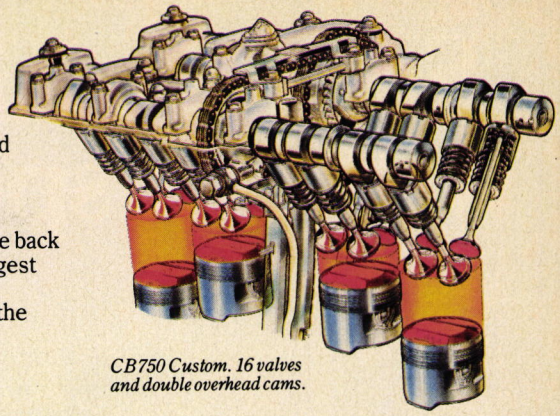
(Engineers call this a change of powerflow and the more there are, the more power is wasted.)

Which means the CX500 Custom delivers not just smooth quiet power, but more usable power.

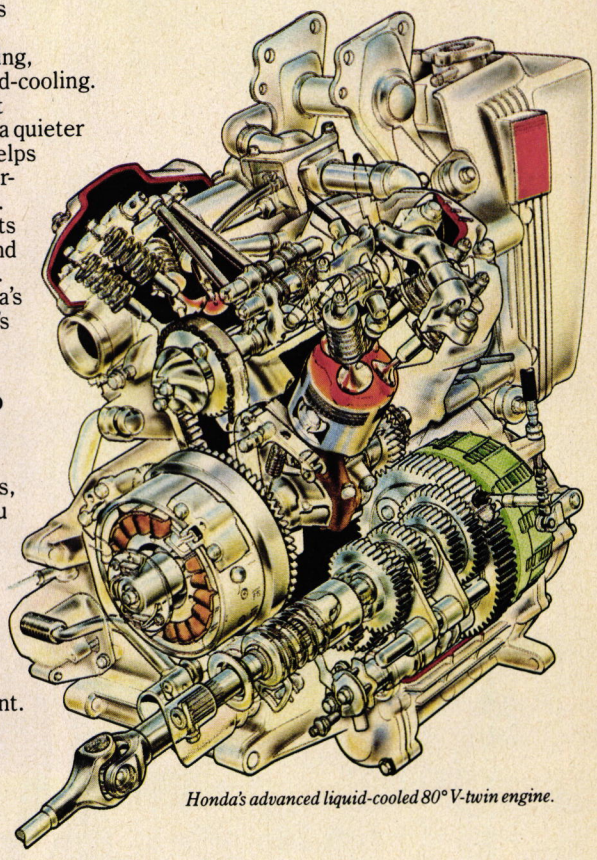
If, however, all this is starting to confuse you, don't worry. You don't need an engineering degree or a slide rule to pick the motorcycle you like best.

All you need is your Honda dealer.

And an open mind.



CB750 Custom. 16 valves and double overhead cams.



Honda's advanced liquid-cooled 80° V-twin engine.

Spend a night on the town without spending a fortune.

These two big beautiful motorcycles also happen to be two big beautiful bargains.

The one in the front with the lean and sporting look is the CB650 Custom, proof that high performance doesn't have to be expensive.

And back in the back stands the shining new CM400 Custom, designed for the rider who demands a little extra style.

No matter how little it costs.

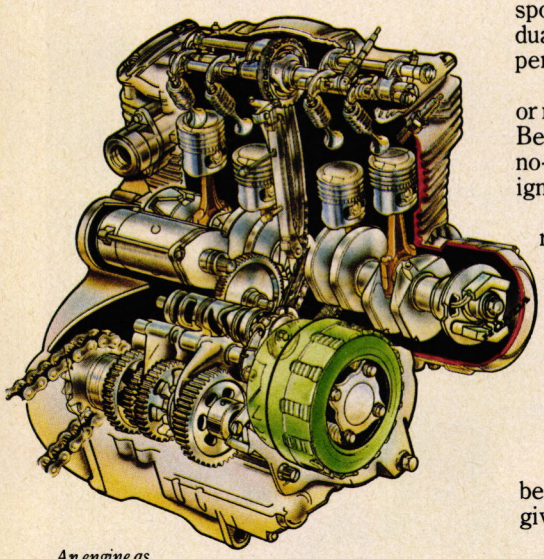
Hello, Beautiful.

With all its gleaming chrome and sparkling paint, the 1981 CB650 Custom is obviously one handsome machine.

The funny thing is it gets even better looking after you ride it.

The powerplant is Honda's classic four-cylinder four-stroke design with an overhead cam and plenty of muscle, all hooked up to four 26 mm constant velocity carburetors.

To understand what this means all you have to do is roll on the throttle. And feel how smoothly the power rolls on.



An engine as famous for durability as performance.

As you come to the first twist in the road, lean over and experience the CB650 Custom's superb handling.

The wide tubeless tires hug the pavement. The leading axle air-adjustable forks and the five-way adjustable VHD™ rear shocks let you set the suspension to the way you like to ride.

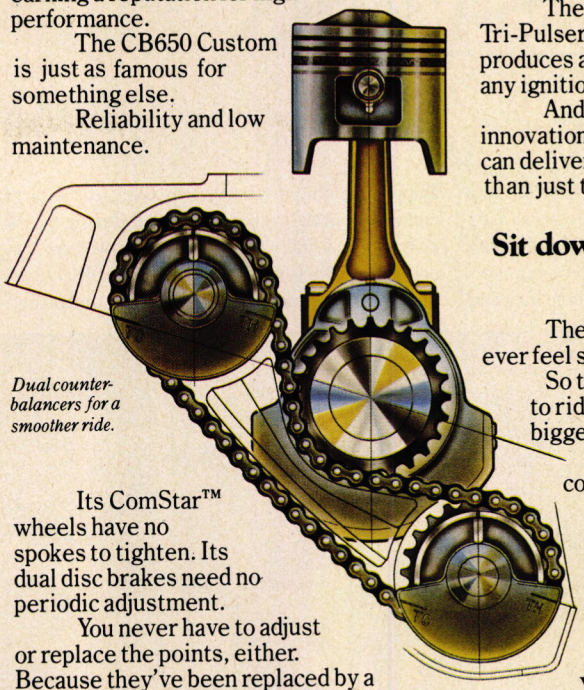
From limousine plush to road racer stiff.

Goodbye, Mr. Fixit.

For more than a decade, Honda's four-cylinder powerplants have been earning a reputation for high performance.

The CB650 Custom is just as famous for something else.

Reliability and low maintenance.



Dual counter-balancers for a smoother ride.

Its ComStar™ wheels have no spokes to tighten. Its dual disc brakes need no periodic adjustment.

You never have to adjust or replace the points, either. Because they've been replaced by a no-maintenance transistorized pointless ignition.

The valve adjustment that might require an expensive trip to the shop for other motorcycles takes only a couple of wrenches and a few minutes at home.

Get a smaller bike. And a bigger wallet.

People usually buy a smaller bike because of all the things they want to give up.

High gas prices, high insurance rates and high price tags.

The problem is you usually have to give up something you'd rather not. Such as performance.

That's where the CM400 Custom is different.

It comes loaded with features you may not expect to accompany a trim 395 cc's.

Its overhead cam engine uses Honda's state-of-the-art Pentroof™ head with three valves per cylinder instead of two for better engine breathing.

And it's hooked up to twin CV carburetors with an accelerator pump for better engine response.

The Power Chamber™ exhaust system increases mid-range power to make the most of every cc.

The CM400 Custom's Tri-Pulser™ capacitor discharge ignition produces a hot spark and frees you from any ignition maintenance.

And all these technical innovations add up to a motorcycle that can deliver performance in more places than just the gas station.

Sit down and make yourself comfortable.

The only time a motorcycle should ever feel small is when it's time to park.

So the CM400 Custom is designed to ride with all the comfort of a bigger bike.

Its engine employs dual counter-rotating balancers to help smooth out engine vibration.

Like the bigger Customs, the front forks are air-adjustable so you can tailor your suspension to road and load conditions.

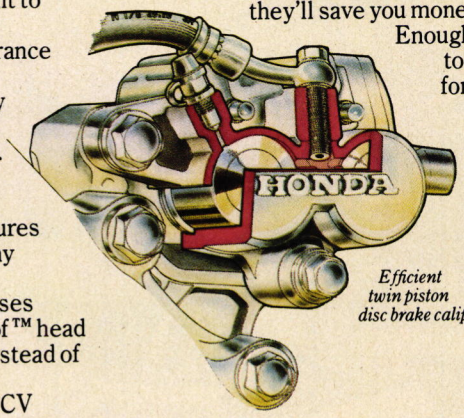
You'll also find five-way adjustable spring preload VHD™ shocks in back and ComStar™ wheels and tubeless tires on both ends.

Even the low saddle and the pullback handlebars have been engineered to give you a seating position that lets you ride longer without getting tired.

With all this going for the CB650 Custom and the CM400 Custom, you may actually forget that they're so affordable and so economical.

Not only will they save you gas, they'll save you money.

Enough, in fact, to help pay for the gas.



Efficient twin piston disc brake calipers.

HONDA

FOLLOW THE LEADER

ALWAYS WEAR A HELMET AND EYE PROTECTION. Specifications and availability subject to change without notice.
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MINITEST:

Suzuki GS450SX

Café commuter—a lovely mug but what's brewing inside?

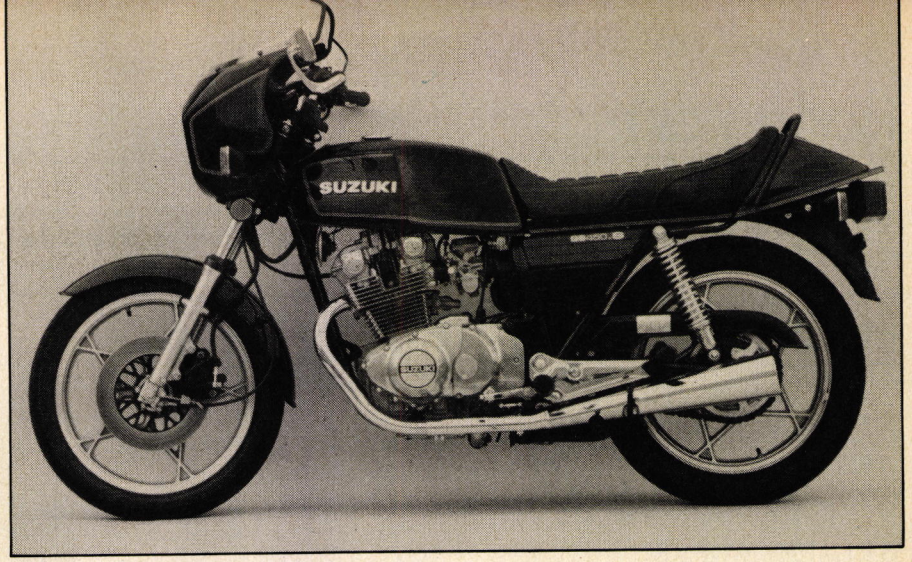
• Frustrating. The 1981 Suzuki GS450SX is a frustrating motorcycle. The bike's sporting lines and riding posture promise a roadracer's capabilities. As you settle behind the quarter-fairing, your eyes watching the serpentine road appearing above the raceresque bubble, you can easily imagine the brave and daring world of a professional rider. Yet in the end, you discover that the Suzuki is truly a capable motorcycle, but its annoying traits and unfulfilled promises intrude into your racer-fantasy.

Suzuki's daring jump into a radical styling concept for lightweight bikes came last year with the introduction of the GS450S. Instead of rehashing the GS400/425 series, Suzuki gave the 450 a new look and appeal which made it a standout among the other machines in its class. The bodywork on the GS450SX seems to be straight from Europe. A crisp angular motif is carried throughout, from the sporty quarter-fairing to the flippered tail section, and this year the bike receives bold new orange and red graphics to contrast the rich black paint.

The European riding posture reinforces the styling theme. The low handlebars and slightly

rearset footpegs provide a supremely comfortable proportioning of control locations which creates a feeling of oneness between rider and machine. With torso leaned slightly forward, you are balanced between the rushing wind and the pull of gravity. Very sporting. The riding position also means the bike can be accommodating even if you consider yourself too large for 400-class bikes.

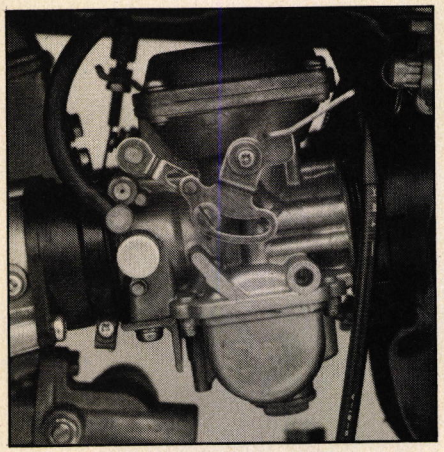
The enticing impression that you are in for a great ride grows with an examination of the engine. It revs willingly to the 9500 rpm redline and a gear-driven counterbalancer means virtually vibrationless performance. Six speeds assure you will never be at a loss for the proper gear. Also, last year's test bike showed that the 450 engine has plenty of power by ripping through the quarter-mile in 14.09 seconds.



SUZUKI GS450SX

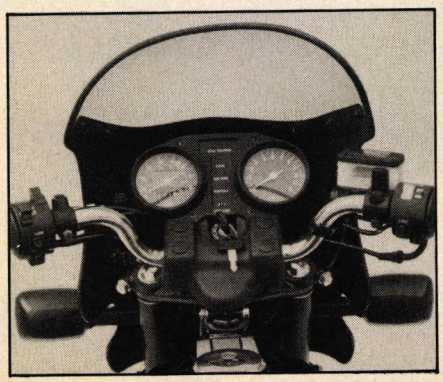
Importer: U.S. Suzuki Motor Corp.
13767 Freeway Drive
Santa Fe Springs, California 90670

Category	street
Suggested retail price	$1889
Engine type	four-stroke vertical twin
Valve arrangement	double overhead camshaft
Bore and stroke	71.0mm x 56.6mm
Displacement	448.2cc
Carburetion	two 34mm Mikuni constant-velocity
Gearbox	6-speed
Front fork/wheel travel	35mm stanchion tube diameter 5.3 in. (135mm)
Rear shocks/wheel travel	5-way adjustable spring preload/4.0 in. (102mm)
Wheelbase	54.3 to 55.8 in. (1379 to 1417mm)
Seat height	31.3 in. (795mm)
Weight	397 lbs. (180 kg)
Top speed (calculated)	100 mph (161 kph)
Fuel consumption	52.2 to 59.1 mpg (22 to 25 km/l)
Warranty	12 months
Available colors	black with red



U.S.-legal Mikunis feed the GS450SX

Cold-blooded fun-killers.



So, bristling with anticipation created by the styling, seating position, and promise of power, you find your first doubts about the sincerity of the GS450 surfacing as you attempt to start the bike. So cold-natured is this twin that many miles and minutes must pass before the engine will accept throttle without the choke. You're likely to leave the choke on simply because you must wait so long for the 450 to warm up that you are no longer aware of choke settings.

Once warmed up and cruising, the little Suzuki makes a fine commuter. The suspension is tuned for a supple freeway ride and belies the fact that you are riding a small bike. Fuel mileage is outstanding, climbing into the high 50-mpg range at steady cruising speeds. The engine is quiet and smooth and the overall ride minimizes fatigue. Though it is intended primarily as a styling device, the quarter fairing does deflect some air away from your chest. Unfortunately, a lot of the deflected air ends up at helmet level, creating additional buffeting and noise. Sometimes the hair-trigger constant-velocity carbs and light throttle return spring cause inadvertant and abrupt speed changes, but a tranquil ride can usually be preserved with a steady right hand.

Alas, when highways and city streets give way to country roads, the Suzuki's promise soon fades—and the frustration sets in. It is then that the ultra-lean carburetors, which before were just an occasional bother, become stuttering monsters. They absolutely refuse to work with you and are easily tricked by sudden throttle changes. Even experienced riders soon feel like rank amateurs because the CV carbs will not cooperate. Your right hand's movements seem only vaguely connected to their behavior, for strange surging and stumbling occurs without your beckoning. And when all this combines with the large amount of drivetrain lash, you find yourself jerking and weaving from corner to corner, blushing underneath your helmet in embarrassment.

In low-speed bends, where drivetrain lash and the engine's mechanical advantage are greatest, you might as well forget about trying to play roadracer. Throttle control is a vital part of steering a bike and without a responsive throttle you find yourself constantly off-line and distracted. This is doubly frustrating because the Suzuki's steering geometry and strong chassis should produce a fine handling package. Sure, the freeway-compromised suspension is really too soft for *serious* café riding, but it could be dealt with if only the engine would behave predictably.

Because we had such high hopes for the GS and because we really wanted it to work, we set about finding a fix for the carburetors. While preparing the 450 for box-stock roadracing we looked inside the carbs and discovered a partial cure. As a way to apparently use existing carburetors to meet emissions requirements, Suzuki has installed shims above each slide needle, effectively lowering each needle's position. A low needle position is a lean needle position, and by removing the 1mm shim the needles can be raised relative to the slide.

With the repositioned needles and accompanying richer mixture, the Suzuki is a far more enjoyable motorcycle. The engine warms quickly. The throttle requires less attention to maintain a steady pace, and flat spots are almost eliminated. The throttle works in a linear and predictable way. It is still possible to trick the carbs into overreacting, but the general impression is of a bike that wants to run. The drivetrain lash also is less noticeable because the Suzuki now works with you.

Unfortunately, this fix won't help street riders. While it makes for a better box-stock roadracer, it also falls under the heading of "tampering" to the EPA watchdogs. What the experiment proved is that the Suzuki GS450 is fundamentally a good motorcycle. With the carburetion problems minimized, its good traits—the traits we thought were there—surfaced. The Suzuki at last began to live up to the promise of its café appearance.

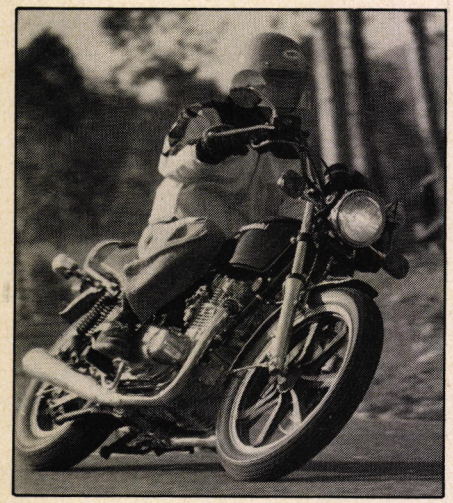
But frustration returned when the carbs were set back to their original specifications. Once again the many reasons to like the GS450SX were nearly overshadowed by the fussy and tedious carburetors. Here is a motorcycle of sound concept, quality execution and high style. Yet its flaws detract from its overall appeal. A glimpse beyond the problems, a glimpse provided only through street-illegal modifications, revealed the enormous potential of the GS450SX. Frustrating. —*Riley Tharp*

ROAD TEST:

Kawasaki KZ440D

Think of it as a small detour into alternative drivestyles.

BY LARRY WORKS



• There's a revolution going on, or hadn't you heard? They say it's the final revolution, the one to end all revolutions. It's supposed to determine what sort of final drive propels the motorcycle you buy 10 years from now. In this confrontation chains, shafts and belts enter the arena . . . and only one comes out. It will be a bloodless coup, though, as bloodless as any death struggle in the motorcycle marketplace can be. Your wallet is the voting booth that will decide the winner.

I'm ready to cast my ballot right now. And I'll even admit that some subtle electioneering on Kawasaki's part swayed that vote. The influence came in the form of the KZ440D—a combination of belt-drive advantages and sensible engineering that's so unobtrusively *right* that you only begin to find out how right it is after you're unable to catalog its flaws.

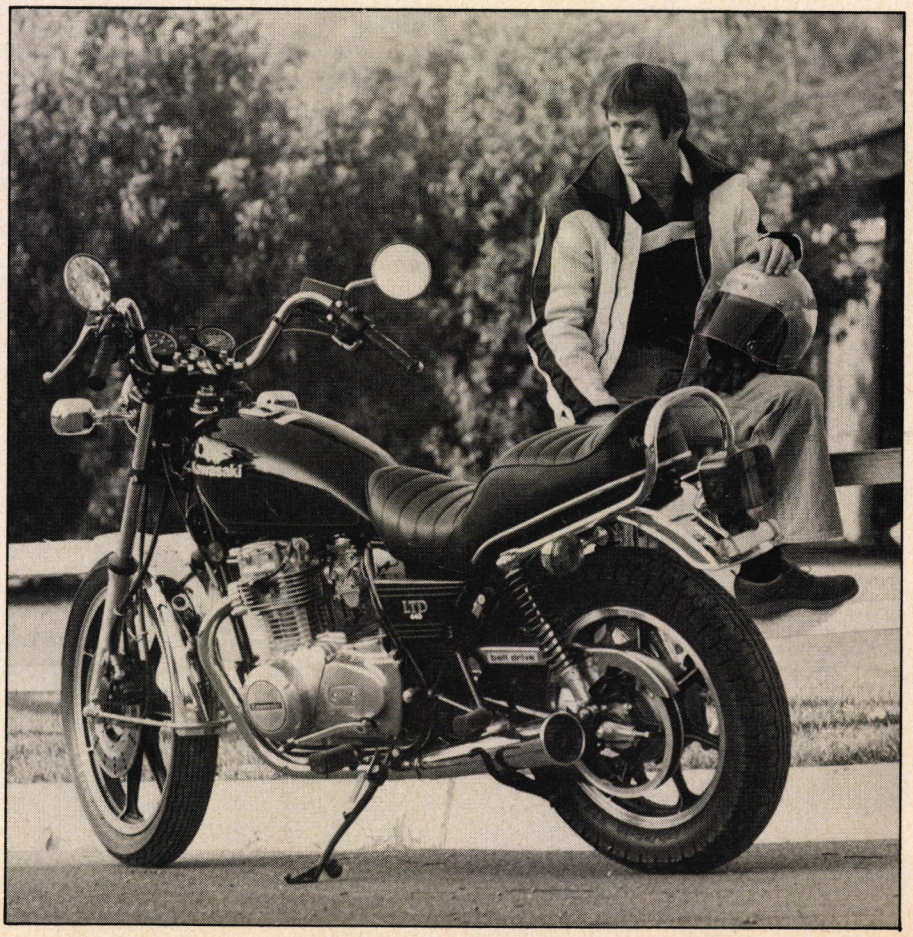
Which is not to say that there aren't weaknesses in this particular KZ's concept, mind you. One of them is stamped right on the side cover—440. It's a bastard displacement that's looked on by some as not a 350, not a 400 and not quite a 450. Pity. It's clearly too small to be of any interest to the hordes of avid literbikers with their heads firmly up their displacements. And of course it arrives in factory-custom raiment, meaning that for some riders a prohibitive stigma was bolted in place before the motorcycle ever left Kawasaki's assembly line. Pity again.

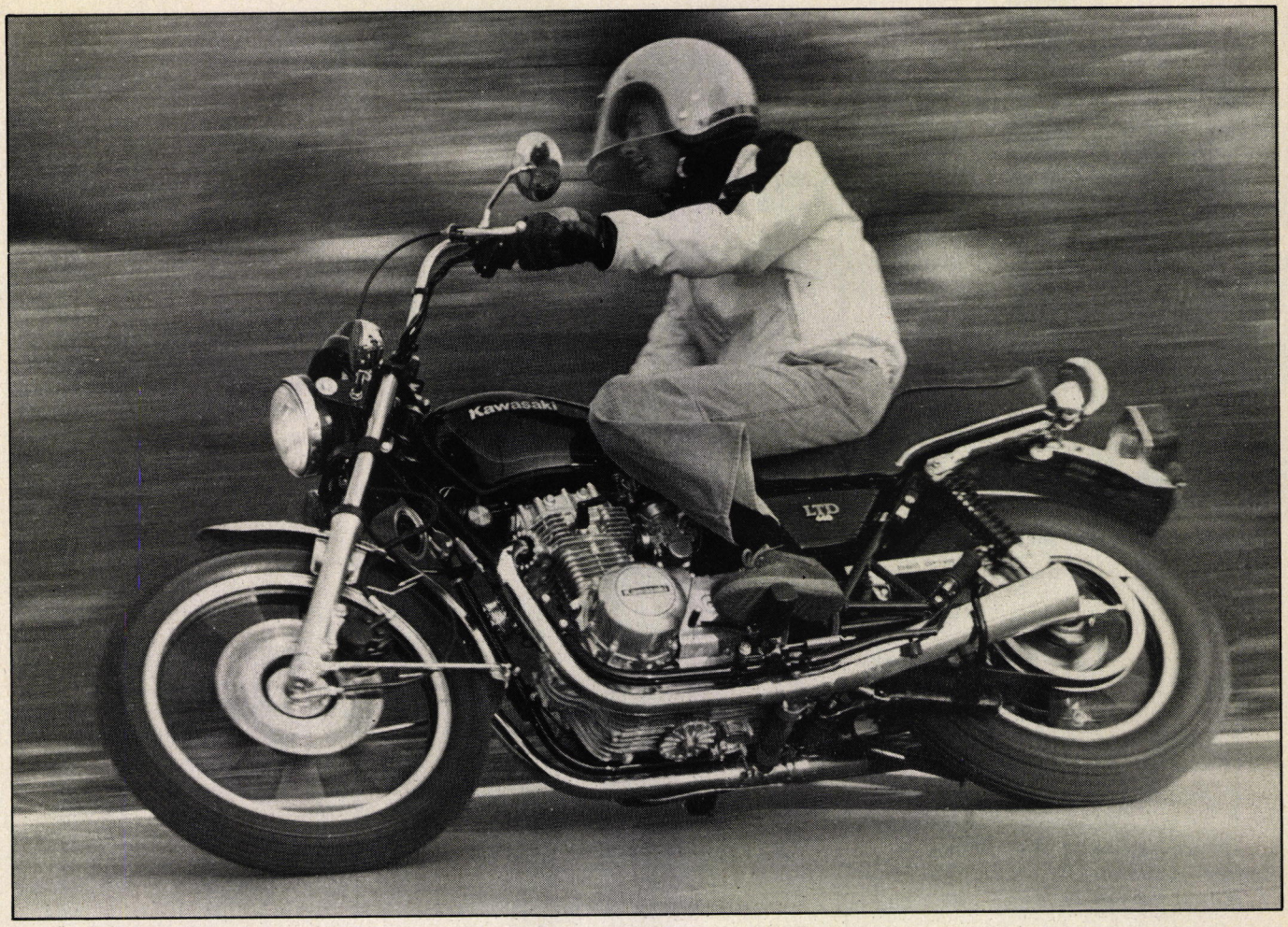
But the biggest pity of the 440D is that all the riders who bypass it for purely prejudicial reasons are failing to give an extraordinary motorcycle its due. Why extraordinary? Simple. The Kawasaki 440D is aesthetically in a select class of one, more or less, and technologically in an only slightly less select group of two.

Aesthetics first: Kawasaki's KZ440D is arguably the only motorcycle whose factory-cruiser styling blows its civilian counterpart out of the water. Smokes it completely, to my way of thinking. The D's styling is balanced and even, with no single outsize bit throwing the proportions out of kilter and ruining the illusion. A tape measure shows in inches and feet that the 440 is a smallish bike, but from a few steps back you can't quite be sure. Everything is downscaled evenly, and the look is so well integrated that you can't really tell how big the D is until you're right on top of it. With a sub-$2000 bike like the 440D, that attention to proportion makes you feel that you're not buying into something that *looks* like a sub-$2000 motorcycle.

Appearance notwithstanding, you have to regard the 440D as significant because it is a functional rarity. It is one of only two motorcycles you can buy today with production belt drive. As on Harley-Davidson's Sturgis, the D's motive power arrives at the rear wheel via a Gates Polychain. But difference for the sake of difference isn't important; function is. Because of this foray into alternative drivestyles, the D is quieter, has less unsprung weight, less vibration and requires less maintenance than an otherwise identical chain-drive KZ440A.

To understand the 440's belt drive—and why it makes the D-model a better motorcycle than the chain-gang A—you first have to rid yourself of the old wives' tales that belt drive conjures up. No, the teeth don't slip and the belt won't stretch like toothed taffy under acceleration. In fact, if you can extract much stretch at all from a section of the D's inch-wide Polychain, you've got problems. You're obviously a refugee from a heavy-gravity planet or from the great apes house of some zoo. Kevlar is the reason you can't use the belt





as a chest exerciser. Nine strands of it give the Polychain about 8000 pounds tensile strength.

Next, divest yourself of the notion that the prime reason belt drive is important is that it frees you from tracks of chain lube up your pants. It does, of course, but that's not the major benefit. One of the best things you get from the 440's belt is constant tension—but not over whether it will snap at the drop of a clutch. The belt has no tight or loose sections as chains do, so the only driveline snatch you get when you snap open the D's throttle is coming straight from the gearbox, without the magnifying effect of a chain. The belt doesn't have to wind up before it yanks at the rear wheel to get it moving, so all that tension pays off in cleaner shifts and smoother power transmission.

Then there's maintenance. After you've canceled your membership in the Chain Lube Of The Month Club you can also forget about harried roadside wrenching to adjust the belt. You will have to tighten the belt occasionally, but only once or twice in a service life "as long or longer" than a chain's, according to Kawasaki. When you do check the belt, guesswork doesn't enter into it. A spring-loaded tool in the D's kit is inserted between the swingarm and the belt; proper belt tension compresses the tool's plunger to a scribed mark. And if the tension is off, adjusting the belt is no more complicated than adjusting a chain—less, even, because you don't have to hunt up any shop rags to clean up the mess after you're done. Besides less maintenance, chains fall out of tune more rapidly than belts and are only as good at getting the power to the rear wheel when they're properly adjusted, so you can figure on a more efficient long-term final drive to boot.

All of the advantages inherent in a belt-drive system weren't lost on Kawasaki; a belted KZ has been in the works since 1972. Many aftermarket manufacturers were producing toothed belts then, but it wasn't until 1977 that Gates satisfied Kawasaki's spec for a production belt. Out of that grew the 440D.

While the D-model was being planned as a marketing weather vane to gauge public acceptance of belt drives, other changes were dialed into the KZ400—the basis for the exercise—to bring it back into the public eye. The displacement was bumped from 398cc to 443cc by increasing the bore 3.5mm, but the stroke was kept at the same 62mm as the first KZ400s in 1974. A Hy-Vo type cam chain replaced the single roller chain when the displacement was changed and the compression ratio was dropped from 9.5:1 to 9.2:1. The bore increase for 1980 didn't require any changes to the engine's bottom end, so none were made; the 440's cases are identical to the 400's.

Choosing the 440 as a test case for belt drive in 1980 left Kawasaki in a good position to judge the marketability of belts. Besides the D-model as the experiment, Kawasaki had the control group, the A-model, the low-buck civilian B-model and the mag-wheel standard C-model to compare it to. And by evaluating belt drive through the 440 series Kawasaki obtained the largest test sample possible, since the 400/440 has traditionally been one of the biggest sellers in Kawasaki's line. No one's passing around production and sales figures on the first-year 440Ds, but the response to belt drives was apparently enthusiastic; the 1981 run of D-models is nearly double the 1980 figure.

If the KZ440's successes were limited to stirring up some rider enthusiasm for a relatively new techno-oriented sales feature, they would still count as successes. But the D is more than just an excuse for Kawasaki

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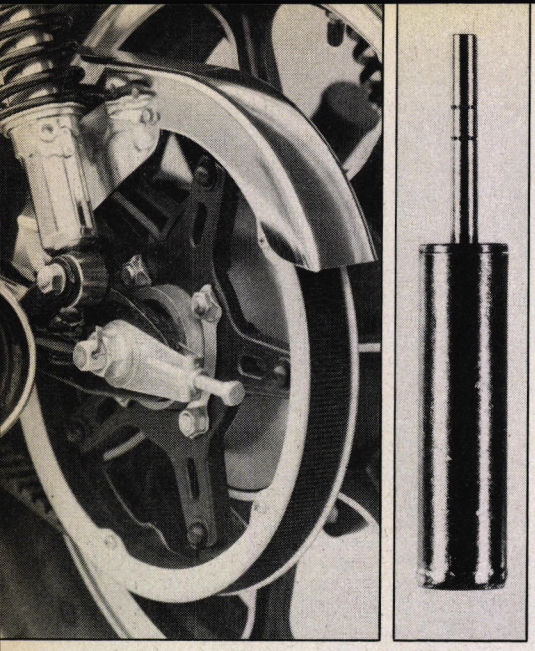


Spring-loaded tool eliminates guessing

One line shows the tight is right.

to parade around a belt drive to see if anyone notices. The motorcycle staggering under all that weighty conjecture about the future of final drive technology turns out to be a pretty nice bike on its own merit. Granted, the response you get from the D's mildly tuned SOHC twin will never set the world in its performance ear, but then, the D isn't trading on one-note performance, either. For all the punk-rocket styling, for all the surprising promise of big-bike thrust that rolls out of the shorty exhaust pipes when the tach reads out over 5500 rpm, what's lurking inside the 440D is almost as radical and high-strung as a pair of sensible shoes. In short, the D is a transpo device, but in the finest sense: It never intrudes.

Much of that lack of intrusion can be traced directly to the engine, which goes about its duties with all the quiet enthusiasm of some devoted family retainer whose fondest hope is to pass through life unnoticed, simply doing a job. The imagery is fostered by the clean carburetion of the two 36mm constant-velocity Keihins, which never stumble and draw undue attention. Hy-Vo type primary and cam chains also do their part to keep you undisturbed by mechanical noises. Topped off by two gear-driven counterbalancers smoothing out the natural twin-cylinder vibrations and the belt final drive running almost soundlessly through its sprockets, the effect is this side of eerie but that side of different. You find yourself wondering what the *hell* that hiss is. If you've never coasted to a stop after a final drive chain snapped and unthreaded itself from its rear sprocket, it might take some time to figure out that the hiss you're trying to place is the sound of tires meeting road

Driveline Styling: A Belt in the Back

• A belt drive is better than a chain in every single way that matters. A belt drive is better than a shaft in every single way that matters except one.

These are not promises for the future "when" the technology exists. They are truth for today. A toothed belt is the best drive system for a motorcycle.

In the better part of a century of motorcycling there has been no appreciable improvement in the way we get motion from the engine to the drive wheel. There has been development but no fresh concepts. What we have always had basically, are just chains and shafts.

Chains always have been and still are: Dirty. In most cases exposed to the elements. In constant need of attention through either adjusting or lubing or both. Breakable if not maintained properly. Short on lifespan.

Shafts always have been and still are: Heavy. A cause of unfavorable handling characteristics as torque is fed into the chassis through the swingarm. Embarrassingly inefficient.

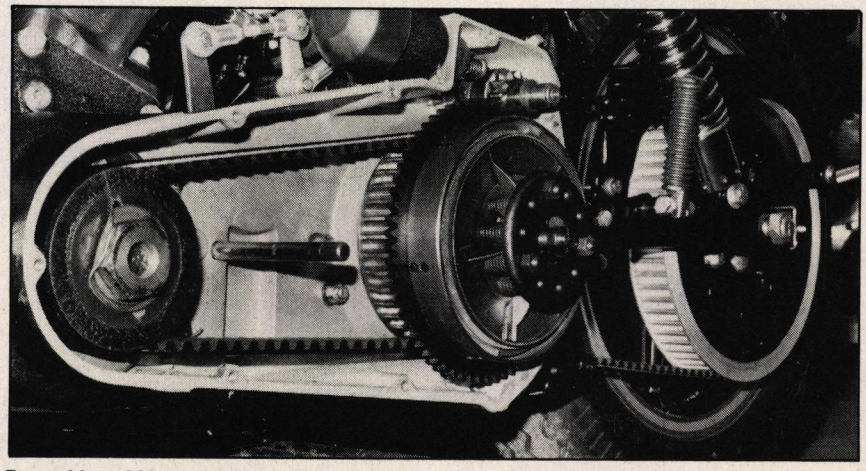
All these gripes about chains and shafts have been improved upon with dogged development, but none of them have really been eliminated. Many of us are tired of buying chain lube for our rear wheels; many of us are tired of motorcycles that jack up and down as we roll on and off the gas. There ought to be something better, we wish. There is.

Most of us first saw toothed belts as supercharger drives on dragsters, and by the late Sixties cars were appearing with toothed belts driving overhead camshafts. (Why no motorcycle manufacturer has a quiet, belt-drive camshaft is beyond me, but that's another matter.) And belt-drive primary kits for Harleys have been available for some time. Which is sort of where things got moving in the belt drive field.

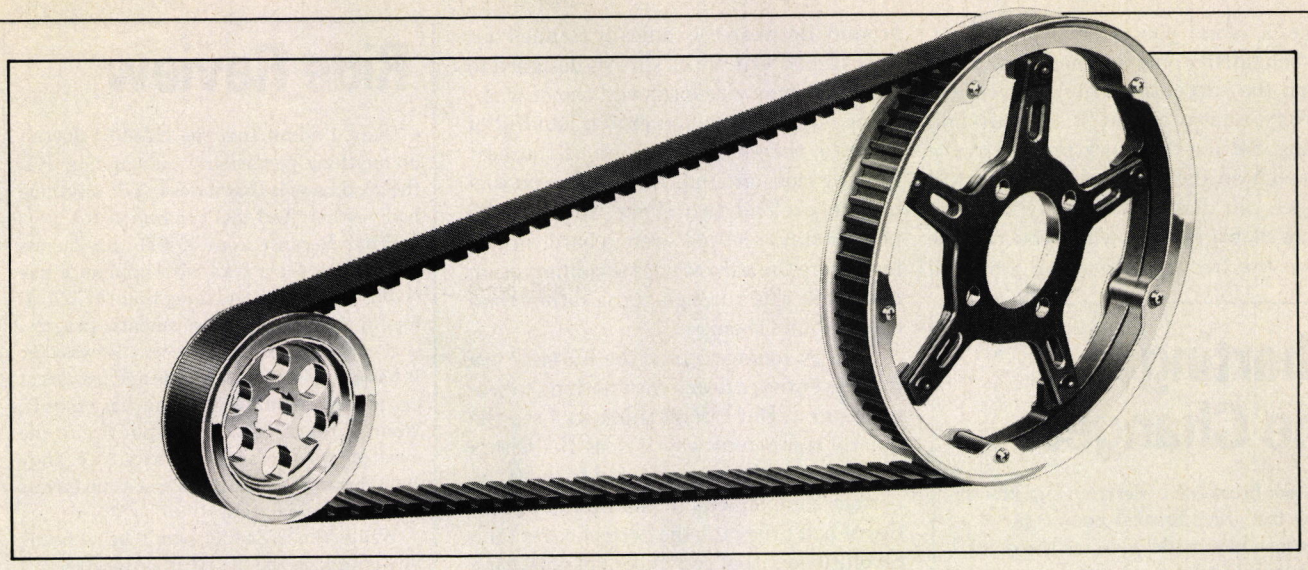
Harley engineers began investigating aftermarket belt primary drives to find out why they were so unsatisfactory—there are many unhappy tales of broken belt drives—and to see if Harley could manufacture its own to sell through its parts and accessories division. The ol' profit motive gets 'em every time. A Harley was shipped to Gates Rubber Company, one of the biggest manufacturers of toothed belts and associated drives, for Gates' use in developing a primary drive. And a year later Gates knocked on Harley's door bearing the forerunner of the Sturgis; it had belts on both primary and secondary drives. The secondary had not been in Harley's plans and was a surprise, but it then became a "why not?" Why not, indeed, especially when after a prolonged period of brutal thrashing the belts proved not just as good as but better than chains *in every way* for Harley's purposes.

At about the same time work began on the Kawasaki belt drive. Kawasaki's goals were production-oriented from the beginning, and it's difficult to say how much the two programs influenced each other. But once the belt was proven on the Harley, Gates figured it was ready for anything because the engineers learned that nothing is as hard on driveline components as the vibrating, slog-it-out, low-end grunt of Milwaukee's 80-inch Vee-twin. At times, according to Don McComber, Manager of Advanced Belt Research and Development for Gates, the belt is subject to as much as 400 lb/ft of torque at the transmission output shaft. And any longtime Harley rider will tell you just how successful chains have been at handling that kind of abuse. Not very.

The Kawasaki and Harley belts that Gates manufactures are essentially identical in construction concept, if not detail. They both have a 14mm pitch—the distance between individual teeth. The tooth form is basically the same except the Kawasaki has a flat-topped tooth and the



Everything old is new again: primary- and final-drive belts on Harley's Sturgis



The perfect motorcycle appliance: belt drive for Kawasaki's KZ440D

Harley's is rounded. The rounded form is covered by a Uniroyal patent that prevents Gates from selling it to Japan; the flat form is a Gates patent. Since the primary drive in the Harley has no provision for adjustment and there was a minimum of space in the case, that belt has a slightly smaller 13.8mm pitch for easier fitting.

Gates makes belts on a cylinder that resembles a big, wide sprocket the same size as the belt—if you want a different belt you need a different molding cylinder. The teeth are nylon, covered with a 0.003-inch film of polyethylene. The main belt material is polyurethane applied in liquid form, with tensile strength provided by strands of polyaramid cord, commonly known as Kevlar. The Kevlar has a 0.090-inch diameter and a tensile strength of about 8000 pounds. It is wound spirally onto the cylinder, and molded into the polyurethane. What comes off the cylinder is a belt about 20 inches wide. It is sliced like bologna according to strength requirements; the 125-tooth Kawasaki belt is 1.0 inches and nine Kevlar strands wide, and the 126-tooth Harley belt measures 1.5 inches with 13.5 strands. The polyethylene protects the nylon from contamination by the polyurethane during the molding process, and also acts as a break-in lubricant during the first 200 miles or so of the belt's life.

Sprocket design and construction is very critical. In fact, says McComber, it was a difficult part of the Kawasaki program, as the Japanese wanted to machine their own sprockets and had to develop the necessary technology. The Harley sprocket is cast in a special process because there can be no draft angle—or taper—on the tops of the teeth. There must be a very slight draft on the base circle and that, plus cooling shrinkage, allows removal of the sprockets from the molds.

It isn't very likely that one of these belts will break. As a demonstration to Harley, Gates suspended a complete motorcycle by only one strand of the Kevlar cord. The explanation for all the primary drive breakages on aftermarket kits is that most of them are made of neoprene, not polyurethane, and under high torque loads the teeth deform and shear off. A polyurethane belt will stand about four times the horsepower and torque of its neoprene cousin.

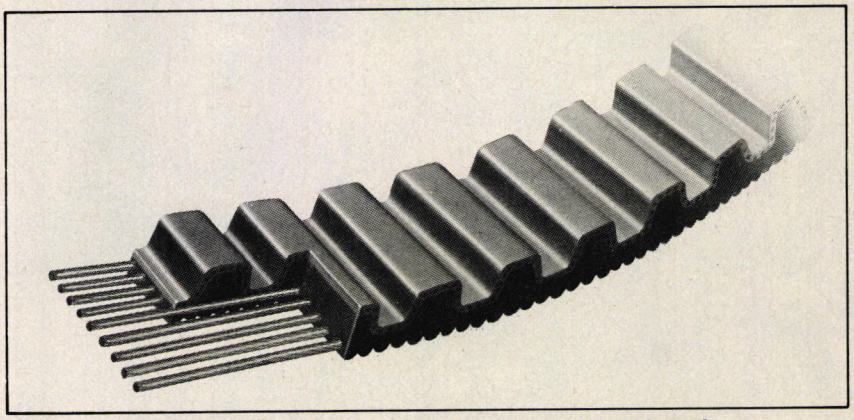
Belts are also more efficient than any other drive system. A chain, when new and properly lubed, operates in the range of, say, 95 percent efficiency depending upon conditions, but will deteriorate rapidly with wear and lack of lubrication. Shaft drives are in the range of 85–90 percent efficiency, but lean toward the lower end of the scale if there are two sets of bevel gears, as with transverse engines. Belts, according to McComber, probably rate higher than 95 percent, even at high speeds, and there is no wear deterioration. McComber figures a belt drive will last at least 30,000 miles and he should know—he's put about 40,000 miles on belt-drive motorcycles himself.

What else do you want? A belt beats a chain every way. It's more efficient, so you can go faster and get better mileage. It's quieter, typically about 3 dbA below a chain according to McComber, which is considerable. It lasts longer, and its only maintenance will be two or three adjustments during its *entire* life. It's lighter. It eliminates driveline snatch through shock absorption characteristics. And best of all, friends, it's clean. No more yucky chain lube on your wheel and up your back. Think about that.

The only thing a shaft has over a belt—I said there was one exception—is lifespan. A shaft drive, properly maintained, will likely outlast the motorcycle it propels.

There's no valid argument against belt drives. For *any* motorcycle. For *any* purpose. McComber says Gates right now has a belt-drive KZ1000 and it's just fine. They are working with another Japanese manufacturer, who must remain unknown, and McComber says it's "guaranteed" there will be more belt-drive Harleys in the future. Basically, he sees the belt's long term durability and lack of any need for maintenance or lubrication as points that cannot be ignored.

I think so too. Especially when I won't have to clean all that chain lube off the rear wheel anymore. —*Don Fuller*



Cutaway of Gates Polychain uncovers Kevlar strands encased in polyurethane

Providing can't bust 'em durability with 8000 pounds of tensile strength.

Continued

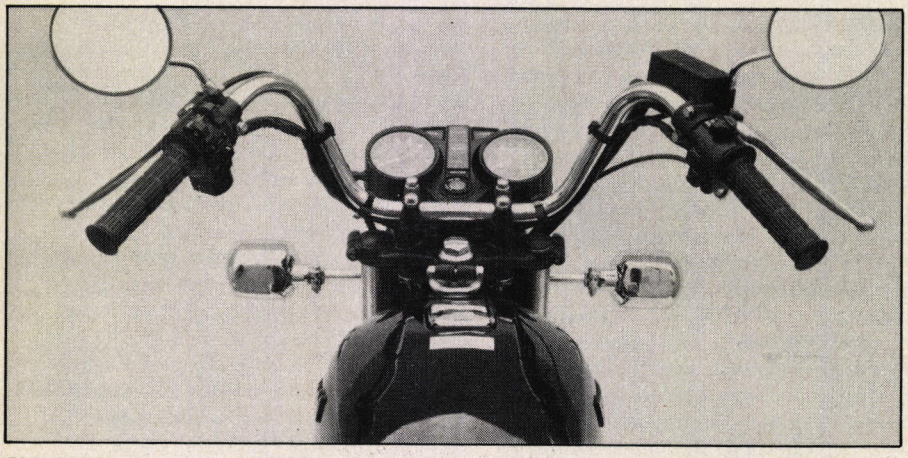
surface, a sound you're unlikely to hear with such fidelity on any other street bike.

Even the suspension tries to keep you blissfully unaware that it's about and working. Setting the shock preload to the first notch on the five-position collar will convince you that your highway taxes really are at work, even when you can see gaps in the freeway expansion joints all around. Between the radically stepped but butt-dished seat, shock springs designed to handle human-size loads and the near absence of lash when you grab a handful of throttle, the 440D gives one of the best freeway rides around. And when you dial up the preload two clicks, the D's 383 pounds stay on track even in hard cornering, where the narrow engine configuration helps you ride through turns rather than drive around them.

Still, by some accounts the KZ440D is a faceless entity, a drone with nothing to recommend it. But I don't think so. I see the quietly competent way it does the things that motorcycles are supposed to do as the perfect complement to the no-fuss qualities of belt drive. It's the perfect cover for a revolutionary that convinces not with flash but function that belt drive is no risk and that it offers real-world advantages. That you really have nothing to lose but your chains. •

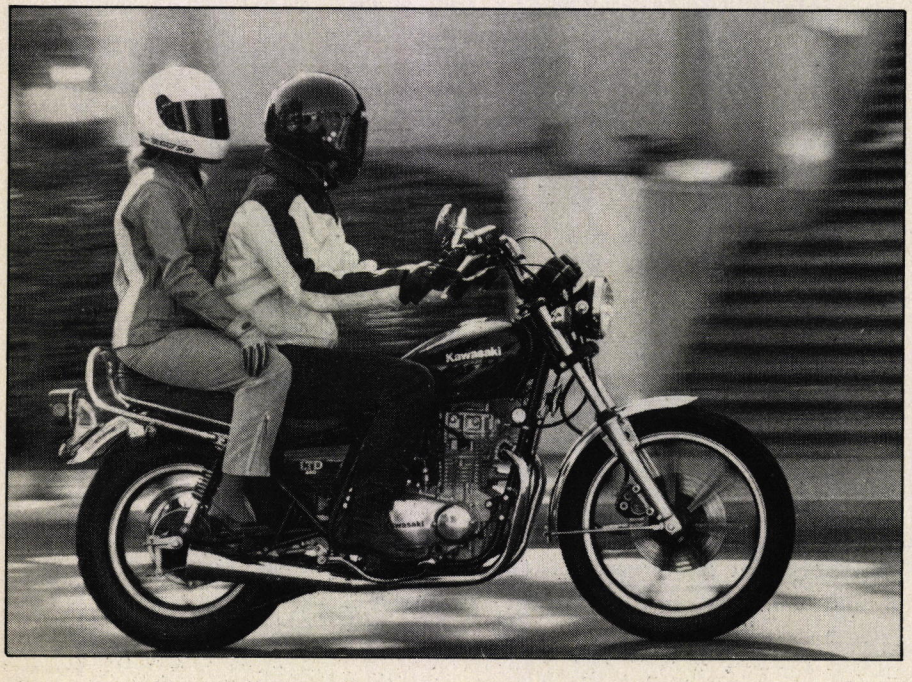
Charting the Changes

Ignition: breakerless electronic ignition replaces last year's breaker-point type.
Electrical: new model features fused auxiliary terminal behind left side cover.
Details: self-canceling turn signals replace former manual switch. New D-model has two separate helmet locks.



Rider's-eye view shows KZ440's big-bike styling and deceptive proportions

Everything but your throttle hand will swear it's bigger.



Ride Review

• Okay, I admit that the KZ440D doesn't do anything particularly outstanding. But the good news is that it doesn't do anything badly either. And that can be a virtue.

Why? Because a lot of 400-class buyers are looking for a bike with appliance-like civility and that's one thing that the KZ offers in abundance. It has smooth, progressive carburetion like all recent Kawasakis. It has a stable boulevard ride and gets great gas mileage. And it's just plain easy to ride. None of these features will put fire in the eyes of performance fanatics, but they should warm the hearts of first-time buyers and commuter-types.

While the KZ440D won't be winning any points on the dragstrip or racetrack, it will be scoring with riders who live with it every day. I don't mind that the KZ440D isn't a standout, it's still an above-the-belt winner to me. —*Riley Tharp*

• There's a conspiracy going on: Kawasaki wants to make the KZ440D a household appliance. Belt drive is for sewing machines, not motorcycles. Especially on motorcycles that convey a lot of macho, which LTD-types are intended to do.

The 440's sewing machine syndrome nags at you beyond its belt, too. Once you sit on the tiny contoured seat and grab hold of the close-set handlebar grips, you feel like you're in one of those turn-of-the-century sweatshops—there's very little room to move around in while you're riding the 440. Once you assume the dictated seating position, you're locked in the mold until you finally reach point B.

I'm calling for a labor strike by the Ladies Garment Workers and KZ440 Riders of America. Until Kawasaki gives me more seating room, and removes the belt, I'm walking the KZ440 picket line.

—*Dain Gingerelli*

• I hated this bike. Actually, I didn't hate it as much as I was *bored* by it. Until one lazy afternoon down at the bike shop when a mildly customized 1970 Triumph 650 Bonneville parked beside the D and helped me to see things in a different light.

It dawned on me then that the two sort of looked alike in profile and proportion, which got me thinking about their similarities in physical size, weight and brand-new cost. The Bonney has the edge in acceleration and handling, but the KZ excels in comfort, smoothness, finish and quality control, and is light-years more reliable. Toss in the 440's electric starter as a bonus, and the message suddenly is clear: What's to hate? Life in the fast lane aboard 11-second rocketbikes had jaded my perception more than I realized. The 440D is no classic Bonneville, but the differences are more ethereal than material. —*Paul Dean*

Kawasaki KZ440D

SPECIFICATIONS:

Importer: Kawasaki Motor Corp.
2009 East Edinger Avenue
Santa Ana, California 92711

CATEGORY: street

SUGGESTED RETAIL PRICE: $1929

ENGINE

Type	four-stroke transverse vertical twin
Valve arrangement	single overhead camshaft
Bore and stroke	67.5mm x 62.0mm
Displacement	443.7cc
Compression ratio	9.2:1
Carburetion	two 36mm Keihin constant-velocity
Air filter	paper element
Lubrication	wet sump
Starting system	electric only
Ignition	battery, transistorized breakerless/single coil
Charging system	12-volt; alternator, voltage regulator, rectifier

DRIVETRAIN

Primary drive	Hy-Vo chain
Primary drive ratio	2.435:1
Clutch	wet, multi-plate
Final drive #	toothed belt 60/22:2.727:1

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.54	16.86	4.3
II	1.75	11.62	6.2
III	1.32	8.74	8.3
IV	1.10	7.27	10.0
V	0.96	6.5	11.8
VI	0.88	5.81	12.5

SUSPENSION/WHEEL TRAVEL, IN.

Front air spring,	33mm stanchion tube diameter/5.1 in. (130mm)
Rear	5-way adjustable spring preload/3.9 in. (98mm)

BRAKES

Front	single-action hydraulic caliper, 9.1-in. (230mm) disc
Rear	drum, single-leading shoe, rod-operated

TIRES

Front	3.25S19 Yokohama Y986
Rear	130/90-16 Yokohama Y987

DIMENSIONS AND CAPACITIES

Weight	383 lbs. (174kg)
Weight distribution	46.3% front, 53.7% rear
Gross vehicle weight rating (GVWR)	745 lbs. (338kg)
Wheelbase	54.2 to 55.3 in. (1377 to 1405mm)
Seat height	29.5 in. (749mm)
Handlebar width	27.9 in. (709mm)
Footpeg height	11.9 in. (302mm)
Ground clearance	7.8 in. (198mm), at exhaust
Steering head angle	27.5 degrees from vertical
Front wheel trail	4.41 in. (112mm)
Frame	tubular mild steel, single front downtube
Oil capacity	3.1 qt. (2.9/)
Fuel tank	steel, 3.0 gal. (11.5/), including 0.8 gal. (3.0/) reserve
Instrumentation	speedometer, odometer, tripmeter resettable to zero, tachometer

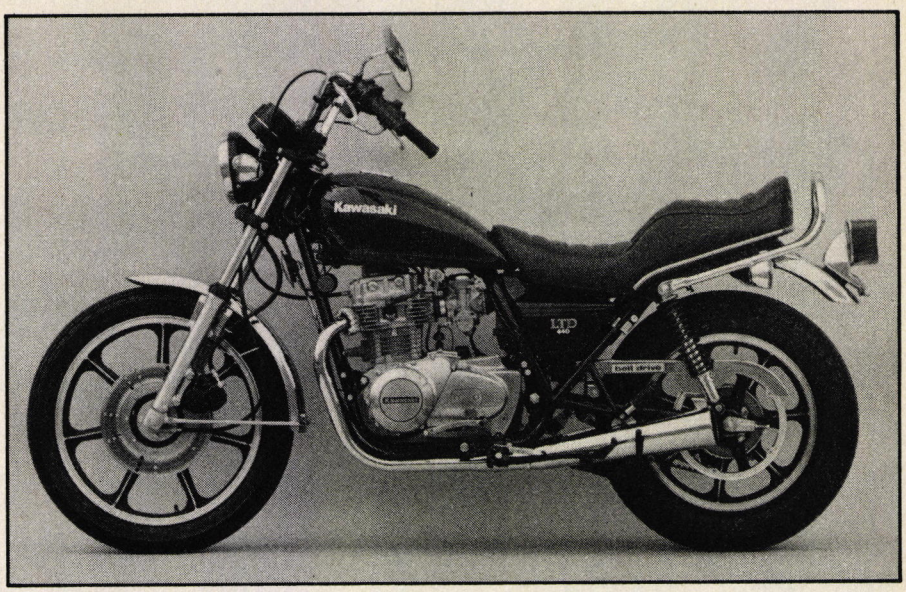
PERFORMANCE

Fuel consumption	56 to 64 mpg (23.8 to 27.2 km/l)
Range, maximum	168 to 192 miles (270 to 309 km)
Range, reserve only	45 to 51 miles (72 to 82 km)
Speedometer error, 30 mph indicated	31 mph actual
Speedometer error, 60 mph indicated	62 mph actual
Best ¼-mile acceleration	14.590 sec., 89.10 mph (143 kph)
Top speed (calculated)	107 mph (172 kph)
Stopping distance from 30 mph	32 ft. (9.8 m)
Stopping distance from 60 mph	135 ft. (41.1 m)

WARRANTY: 6 months

AVAILABLE COLORS: black

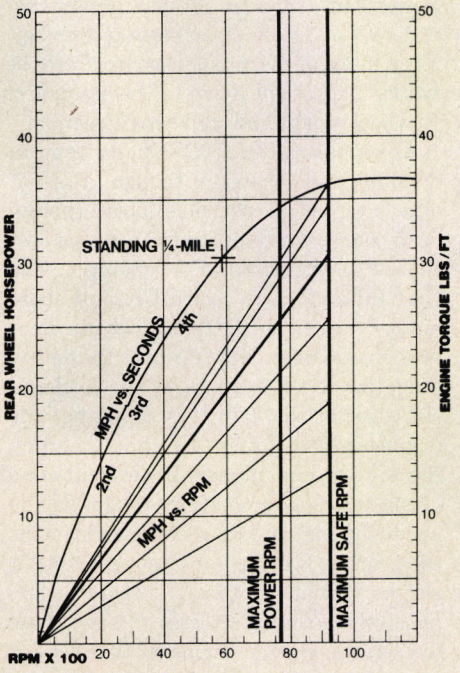
All weights and measurements are taken with machine unladen and fuel tank empty.

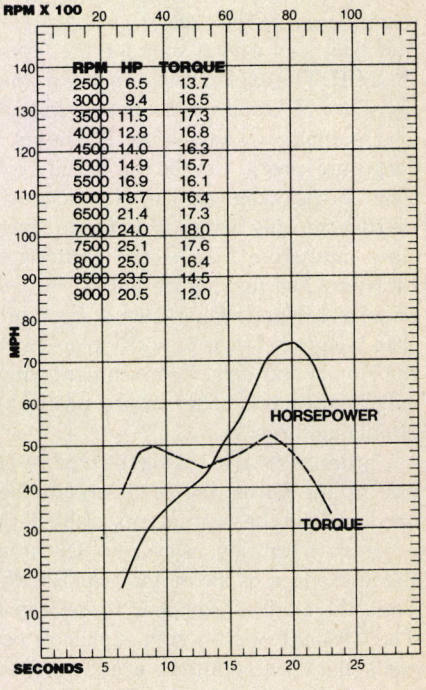


COMPARATIVE TEST DATA:

Make	Quarter-Mile, sec/mph	Top Speed, mph	Weight, lbs	Stopping Distance From 60mph, ft.
Kawasaki KZ440D	14.59/89.1	107	383	135
Honda CB400T	14.37/88.6	100	391	139
Honda CX500 Custom	14.12/92.9	102	468	146
Kawasaki KZ550	13.45/97.1	103	426	150
Suzuki GS450ST	14.09/92.5	100	397	127
Yamaha RD400F	14.16/90.1	98	355	129

PERFORMANCE:





TRACK TEST:

Honda CR450R

Motocross was never like this at Elsinore.

BY DAVID DEWHURST

Honda's new CR450R is not just another Red Rocket. It is more like a Titan-size missile, aimed right at the heart of Open-class motocross. And unlike any previous Honda Elsinore motocrosser, the 450R is intended to be a take-no-prisoners, victory-at-all-costs motorcycle, designed to win races, not just sales.

It has been a long wait for the Open-class CR. The explanation lies in the small numbers of Open-class bikes sold each year, a number so small that no amount of corporate profit can be squeezed from them. It has taken years for Honda to realize that the only justification for an Open-class motocross bike is the winning of races, not the making of dollars. So only now has a Honda Open-classer been programmed to beat the opposition and wave the Honda flag, an accomplishment which will in turn sell other, more profitable Honda motorcycles.

Naturally, even in taking the Open-class bull by the horns, the engineers grabbed one horn and the accountants grabbed the other, both fighting, as ever, to determine the final shape of the motorcycle. But this time, the engineers appear to have won. The CR450R bristles with expensive new parts that the accountants would never endorse. In many areas, the CR450R design crew leap-frogged over the opposition, sparing few pennies in the search for the most effective hardware possible. The rear Pro-Link suspension comes directly from the championship-winning bikes of Chuck Sun and André Malherbe. Though the 431cc engine shares little with the works powerplants, it is an all-new design that reflects the latest Open-class technology. Even much of the detailing comes from the works bikes, right down to the amount of flywheel weight and shift-shaft location.

As serious as the 450R is in concept, in detailing and in action, though, it is not quite a win-at-all costs bike. The corporate bean counters attempted to keep that cost as low as possible. For example, the CR450R and water-cooled CR250R share many components. Both engines use identical engine cases, right down to the empty bulge for a waterpump on the lefthand sidecover of the 450. It is clear that the engineers have gotten the upper hand on the accountants, though. It shows in some of the radical approaches to weight-saving inside the engine. The selector drum inside the gearbox is drilled and relieved until it weighs virtually nothing. It takes an expensive machining process to save those few ounces, but the engineers were serious enough about the CR450 to take the trouble. They also went to the trouble of designing a special four-speed gear cluster that is stronger and better suited to the 450R than the 250's five ratios.

No special accountant-antagonizing secrets account for CR450's power, just a careful matching of port dimensions and exhaust pipe proportions with a new Mikuni-replica Keihin carburetor. Clean air sucked through a new air filter winds its way around the Pro-Link shock, mixes with fuel in the far more adjustable Keihin and enters the engine through a grid-pattern six-petal reed valve similar to those used in previous CRs. Once the fuel mixture passes the reed, its flow into the cases is promoted by an almost full-circle crank with flats machined on its periphery on either side of the crankpin area. Four conventional transfer ports then deliver fuel to the cylinder with each piston stroke. Intake efficiency is also bolstered by two small, round transfers that connect the rear of the crankcase with the inlet, improving the flow of fuel from the cases to the cylinder's single boost port.

The virtue of this simple engine design lies in the combination of high efficiency with minimum weight. But the engineers did not compromise reliability by reducing the strength of crucial engine parts. A hefty steel liner replaces Honda's familiar chrome-lined design so CR450 owners can now rebore the cylinder. The wrist pin, connecting rod and big-end bearing all are enormous for a two-stroke engine (their use on the CR250R engine would seem to make it almost indestructible). They are actually large enough for a 500cc four-stroke single, which should insure a long and healthy life in the 450R.

With so many pieces in common, it should be no surprise that the 450's engine feels much like a 250 motor, its large outer-rotor ignition flywheel notwithstanding. It takes a strong kick at the tall leftside kickstarter to prod the 431cc engine into life, but after that, it answers every blip of the throttle quickly and crisply like a very strong 250. Only the loud, deep bark from the exhaust pipe tips you off to the number of cubic centimeters on hand.

Once you grab a handful of throttle, your spine resonates to the exhaust note and the tingle crawls right up your back. But for all the power this engine makes, it does not explode. Its torque curve is not as flat as a YZ465's, but the engine does combine an ability to deliver lots of mid-range poke with the ability to rev very high—power peaks around 6000 rpm, but it continues to rev to 8500 rpm, where the ignition refuses the call for more revs. This flexibility is characteristic of a 250. There

is no mistaking the amount of power delivered, though; it is all Open-class. The CR450 leaps out of turns at almost any rpm. The engine carburetes so cleanly that it will not bog. If it falls into the powerband basement, only a quick fan of the clutch is needed to get it back into action.

The engine's power delivery is perfectly suited to the CR450's four-speed gearbox. Second-gear suits starts best, and only one more gearchange is usually needed before the first turn. The engine's ability to rev also cuts down on gearshifts around the track. The shifting action is good, but you might have trouble if you have large feet. The folding tip of the shift lever is held in place by a rubber band which runs the length of the lever. It works fine, but because the band is large, the lever itself is thicker than usual. And so Paul Dean's big left foot, as well as my own, often caught the lever inadvertently, producing a neutral on more than one occasion.

Despite that flaw, the CR450R engine ranks as a brilliant effort. It doesn't make the sheer power of a YZ465, and it doesn't grunt out of the corners the way a big Maico does, but better yet, it combines elements of both. Honda balances these two schools of power-production philosophy to produce an extremely powerful engine as responsive as a 250 motor yet as flexible and easy to live with as an Open-class mill. As a result, you feel in control of the engine instead of the other way around.

The engine's merit is enhanced by the fact that the chassis permits you to use full throttle without fear. Whatever slight edge in absolute performance the motor gives up, the chassis regains because you can put the CR450's power to good use. And like the engine, the chassis has a very balanced performance profile. In fact, the CR asks to be flung around the track like a 250 (indeed, the frames of the CR450R and CR250R are identical but for swingarm length). It has no pronounced characteristics, except that it finds exceptional traction everywhere. The Pro-Link rear suspension keeps the rear wheel on the ground like no other motorcycle I've ridden. The low initial spring rate permitted by the rising-rate design allows the rear wheel to follow even the tiniest ripple.

Brilliant traction calls for some changes in your usual riding style, though. Most bikes spin their rear wheels quite a lot in the turns, which keeps them from suddenly hooking up before they shoot down the straight. But because the CR450 finds

Continued

PHOTOGRAPHY © 1981 DAVID DEWHURST

THE INSIDE STORY:

The Rise of Single-Shocking

Roger De Coster put the pro into Pro-Link.

• No matter how you look at it, Pro-Link shapes up as the best one-shock rear suspension system so far. In theory, on paper or in the mayhem of motocross, Honda's rising-rate suspension just flat *works*.

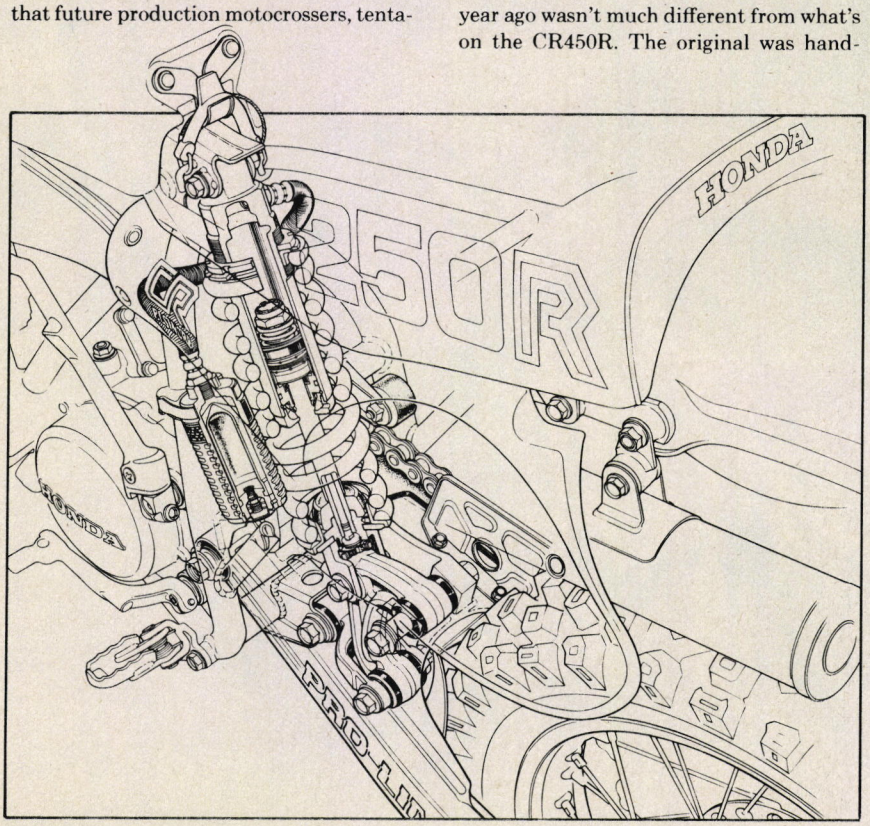
Pro-Link wasn't always worthy of such high praise, though, especially in its original two-shock incarnation first seen on the GP circuit in 1978. The single-shocker that debuted at the Anaheim Supercross in November of 1979 was a vast improvement, but it still drew few raves from Team Honda riders. In the end, the best thing about those early Pro-Links was that they were just good enough to encourage continued development of the concept.

Ultimately, the turning point for Pro-Link was the hiring of Roger De Coster by Honda late in 1979. The instant he rode a Pro-Link RC works bike for the first time in January of 1980, De Coster knew that his top priority would simply *have* to be the quick and competent refinement of the rear suspension. In his mind, that was the only way the factory bikes could be made to handle, which is something they didn't do very well at the time. That also was the only way that future production motocrossers, tentatively scheduled to incorporate Pro-Link for the 1981 model year, could hope to be competitive, either in the showroom or on the racetrack.

Judging by the CR450R, De Coster did his job well. But, then, no one ever thought he wouldn't. Aside from all of his legendary accomplishments, the Belgian-born five-time world champion also has become one of the most astute R&D minds in the business. He can ride the wheels clean off a motocross bike, then dismount and tell the engineers *precisely* what's wrong and how to rectify it. Moreover, De Coster was particularly suited to the development of Pro-Link, since rising-rate motocross suspensions had more or less become one of his hobbies. During the 1979 season, you may recall, he voluntarily experimented with a linkage-type rising-rate front fork on his works Suzuki. So although De Coster may have had nothing to do with the origination of Pro-Link, most of its current state-of-the-art effectiveness can be attributed to the quality and insight of his input.

From a physical standpoint, the early one-shock Pro-Link that De Coster tested a year ago wasn't much different from what's on the CR450R. The original was handmade, obviously, and the system's springing and damping both have gone through scores of rate changes since then, but the basic design is still the same. The first versions had an adjustable link between the frame and the swingarm-mounted shock's rocker arm, but it was never intended as a production item and so was abandoned after a while. "The adjustment was only there to help us find the right progression curve for the suspension," claims De Coster. "Once we got close to finding the best curve, it wasn't necessary."

Indeed, finding the proper curve is the key to making any rising-rate suspension live up to its potential, but doing so is a tedious process of trial and error. You must determine the ideal leverage ratio (the mechanical advantage the rear wheel exerts on the shock absorber) for the beginning of the axle stroke, the best ratio for the prevention of bottoming at the end of the stroke, and the rate at which the ratio changes *during* the stroke. And all of this must be done in addition to calculating the best overall springing and damping rates. That's why De Coster and his tuner, Dave Arnold, spent most of the 1980 GP season doing a lot of guesswork. "I was a guinea pig," says



© 1981 MIKE MEYER

De Coster, "but we had to experiment, especially at the beginning of the season. Sometimes I had to drop out of a race because I had taken a chance with a suspension setting and it didn't work. Sometimes I even went against the wishes of the factory engineers and made certain changes in the geometry of the Pro-Link on my bike. But such chances had to be taken so we would know for sure how various settings affected the rear suspension."

Those experiments concluded when De Coster finally settled on one particular curve that, for the present at least, he feels is the optimum. Team Honda personnel refer to this curve as "No. 19," which indicates how many variations were tried along the way. But the ultimate endorsement of No. 19 is that all of Honda's Pro-Link motocrossers for 1981—the CR production bikes *and* the RC factory race machines—will use it. The team bikes will have special shocks with different springing and damping rates, of course, but the curve that governs the progression of those hand-built suspensions will be identical to that of the CR125R, the CR250R and the CR450R.

Not surprisingly, curve No. 19 reflects De Coster's philosophy about progressive motocross suspensions. He believes that as much of the wheel travel as possible should be as soft as possible, with the most radical part of the progression occurring at the very end of the stroke—and that the final, sudden increase in wheel rate is there only to prevent excessive bottoming. No. 19 accomplishes this by giving the rear wheel a whopping 4.5:1 leverage ratio at the very beginning of the travel, gradually decreasing to a 1.6:1 ratio at the conclusion of the axle's 318mm of upward movement. And since lowering the leverage means that the rear wheel has greater difficulty compressing the shock, a decrease in the ratio means an effective *increase* in the rear wheel's actual suspension rate, thus the term "rising rate."

Just as important, however, is No. 19's rate of leverage decrease. During the first one-third of the travel, the leverage drops only about 20 percent to 3.6:1, so there's still a relatively soft ride. During the second one-third, the decrease is just marginally greater—22 percent, yielding a 2.8:1 ratio and retaining a reasonably compliant suspension. But by the end of the final one-third, the leverage has decreased an additional 43 percent to a mere 1.6:1, with the majority of that drop coming during the last *one-sixth* of the stroke. So the suspension rate at full compression is about three times greater than at full extension.

All of this comes into focus when you compare these ratios with those of other suspension systems. The original one-shock Pro-Link, for example, began at around 3:1 and finished near 2:1, with a fairly constant rate of leverage decrease. Most dual-shock motocrossers use ratios of around 2:1, as do the latest Monoshock Yamahas. The problem, though, is that those two systems are capable of little or no variation in leverage during their strokes and so cannot have significantly rising rates.

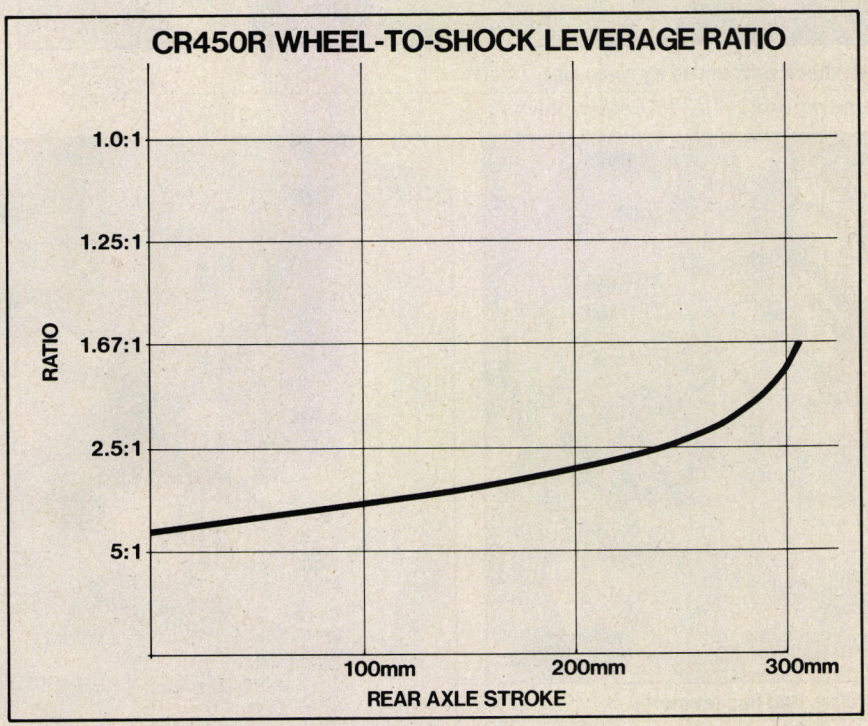
Kawasaki's Uni-Trak, on the other hand, which employs a leverage ratio of around 3:1, has just as much inherent rising-rate potential as Pro-Link, but its designers inexplicably chose not to utilize that capability. Most Uni-Traks, therefore, have virtually linear rear-wheel rates, and a few are even mildly *regressive* toward the end of the stroke. Suzuki's Floater system, similar in concept to Uni-Trak, has not yet been introduced to the public, but according to De Coster, it does incorporate rising rates.

De Coster even rates Suzuki's one-shocker as the second-best system, right behind Pro-Link. He considers Uni-Trak the third-best, with the Monoshock bringing up the rear. And he's quick to point out that it is performance, not the company name embossed on his paycheck, that determines his rating of one-shock suspensions.

De Coster admits that it would be possible to achieve rising rates with a dual-shock Pro-Link, but that he agrees with Honda's decision to use just one shock. "Single-shock suspensions are in vogue," he explains, "and so having a good one is important for sales appeal. Anyway, the two-shock Pro-Link offers only limited progression because the links and arms on each side of the swingarm must be comparatively small. The single-shocker is better."

Logically, the next step ought to be a rising-rate *front* end. Let's not forget that De Coster's involvement with progressive suspensions began with a front fork, one that probably still is clanging around in his head, if not his parts bin. So it's likely that one of these fine days we'll see something like it bolted onto the front of a Honda. After all, as De Coster himself has rhetorically asked, "Which end of the motorcycle hits the bumps first, the front or the rear?"

Enough said. —*Paul Dean*



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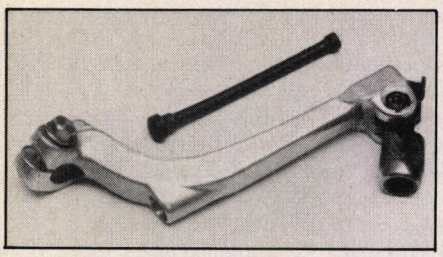
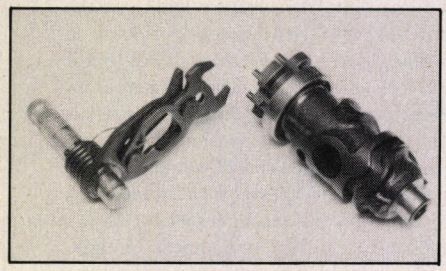


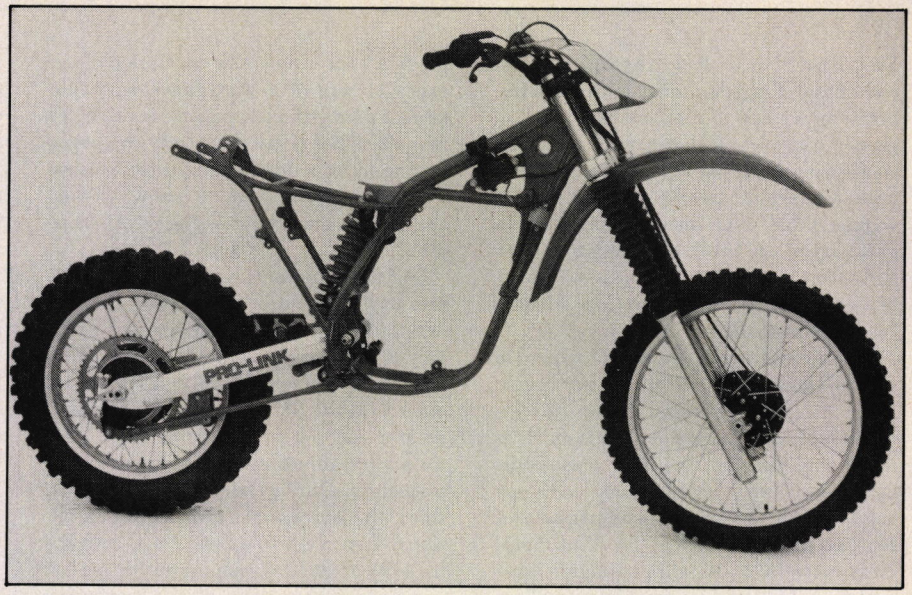
Plain and simple rubber band retention

Less complex and wider to boot.



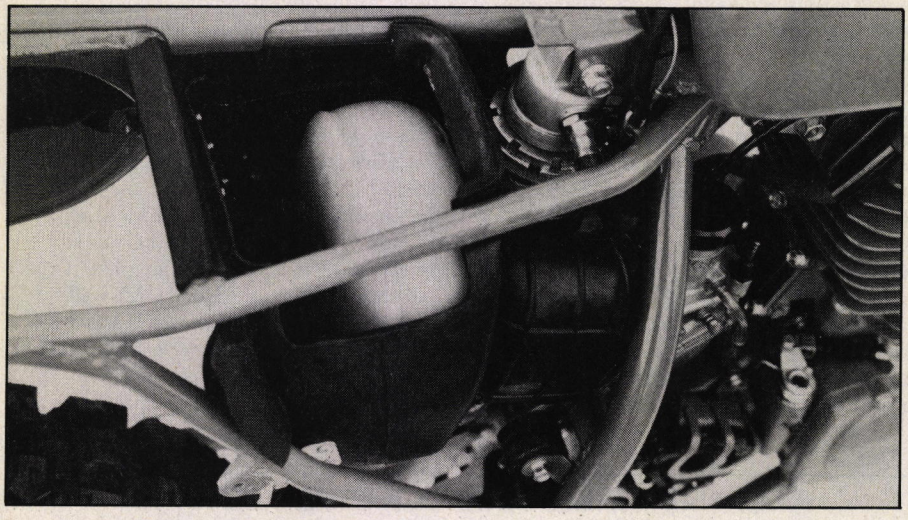
Light and simple selector mechanism

Saving pounds by spending dollars.



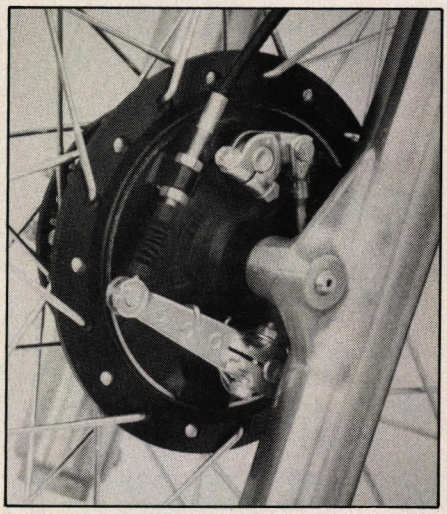
Chromoly steel and extruded aluminum form a light but sturdy frame

Pro-Linking a radical rear end to familiar front fork.



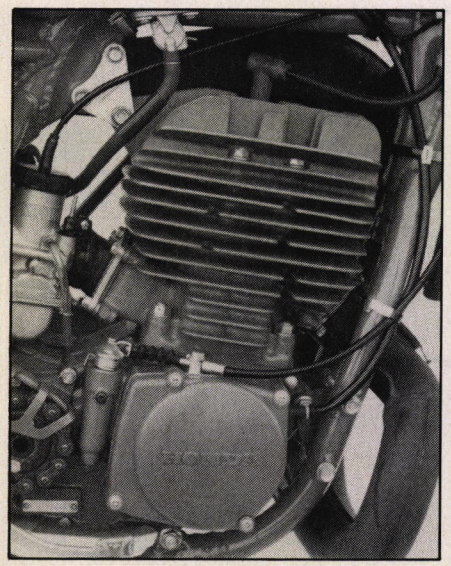
Showa shock surrounded by clean air

Routing air around a Pro-Link problem.



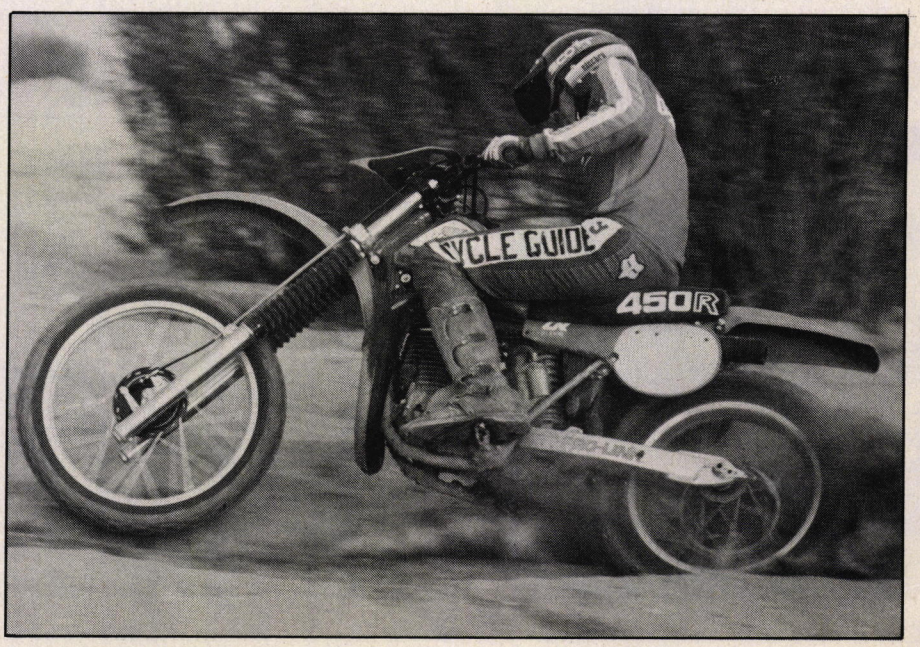
Fantastic front stopper

Doubling the shoes halves the effort.



Open-class Red Rocket motor

Big but light, fast but not ferocious.



traction the instant the throttle is opened—thanks to Pro-Link—the long-wheelbase bike wants to lunge ahead immediately. So to insure that it tracks impeccably around turns you must sit far forward and lean over the tank. Otherwise the front wheel will come up as soon as you open the throttle. Indeed, the CR's tendency to squat as it accelerates makes it the easiest bike to wheelie I've ever sat on.

It could be that the decision to equip the CR450 with a Bridgestone M22 rear tire, normally a less-than-optimal choice, actually works in your favor because of the bike's ability to hook up so well. With any more rear-end grip, the 450R could very well be a handful. As it is, the CR hooks up and blasts out of the corners faster than anything. Period. Furthermore, the compliant rear suspension insures that the rear end won't lose traction and suddenly step sideways. You can slide through the turns or exit them upright in the classic fashion, but no matter how you come out of a corner, you should make sure that no one is in front of you. Otherwise, the 450R will just run right over the top of them.

Sometimes you almost believe that the Honda's traction-finding rear suspension could be a bit too soft, though. So plush is the first half of the rear suspension travel that you dread the first big jump and the bone-jarring landing that is sure to follow as the suspension bottoms. Yet the crash never comes. As compliant as Pro-Link is over tiny ripples, it handles extreme conditions like no other rear suspension produced to date. With the single Showa shock set in the hardest of four externally adjustable damping positions and the spring on minimum preload, the CR can handle most tracks.

One drawback of the Pro-Link system is the fact that the 450's front fork action feels a little flawed in comparison. In reality, though, the Kayaba fork used on both the CR450R and CR250R (the first time Honda has failed to fit a Showa fork on a motocross bike) works in the same state-of-the-art fashion as the forks of other Japanese motocross bikes. At first, it feels a little harsh because the Pro-Link is so compliant, but with four psi of air, the Kayaba front end does its job professionally.

The only criticism that can be leveled at the CR450R's suspension has to do with the selection of spring and damping rates. Each of our testers, from 180-pound Paul Dean to 150-pound Dean Taylor, preferred the rear end set to the stiffest damping position. On that setting the CR worked very well, but there is no reserve for extreme conditions. Available adjustments do not properly bracket the best damper setting. This, in turn, limited spring preload to the softest setting. Over one fast jump, the rear end of the bike would even rebound fast enough upon landing to break traction, making the bike move around a little bit and preventing full power from being used. Still, this should not be overplayed, because virtually all riders will still find the CR450R's rear suspension action far superior to that of any other motocross bike.

Despite its problems, the 450R's suspension suits a wide range of rider skills. So too does its detailing. The seat height is average by modern standards at 37.5 inches, but once a rider is in the seat, there's enough droop in the suspension so almost anyone can touch the ground. And the flat seat, rubber-mounted handlebar and cleated footpegs permit a relaxed riding position that keeps you comfortable over a long moto. There also are a few nice touches like the Teflon-lined lateral-pull throttle. It uses no pulley wheels to turn the cable through the necessary 90 degrees, yet works very smoothly. Likewise, the clutch also works easily. And only a gentle squeeze of the dog-leg lever is enough to modulate the powerful double-leading-shoe front brake (said to be 40 percent more powerful than a single-leading-shoe design). The front brake is particularly progressive and easy to use considering the amount of braking power available. The rear brake, however, feels a little bit touchy in comparison.

Taken all together, the CR450R ironically is far easier to ride than its win-at-all-costs billing would lead you to believe. Somehow, the technical details and performance characteristics fail to seem as awesome as those of other Open-class motorcycles. As it turns out, the only awesome thing this bike will do is win races. It will win races because it is easy to ride, because it is as flingable in the corners as a 250 and because it is as predictable on acceleration as an Open-class bike. Honda's motocross engineers believe that supplying the right kind of power, the right kind of suspension action, the right kind of braking power is more important than packing more of everything into a two-wheel monster bike.So the CR450R is that rarest of quantities, an Open-class bike with finesse, its production components sharpened to a works-bike edge.

Unlike the latest big bore bikes, this is no bull in a motocross china shop. Honda's motocross designers—as well as its corporate accountants—have tamed a very serious piece of hardware and delivered one of the easiest and most forgiving bikes to ride in Open-class motocross. •

Ride Review

• Sure, I like the CR450R, like it a lot, thank you. Just as this test has stated, it's fast, responsive, easy to ride and absurdly forgiving. For me, at least. But I worry about the 450's ability to do the same thing for a normal range of riders on a reasonable variety of tracks.

For one thing, I question the practicality of the CR's 250-like quick-revving power in, say, gooey mud, on slick off-cambers or anyplace, for that matter, where the heavy-flywheeled tractability of traditional Open-class torquers is a real asset. I also question Honda's apparently mismatched bracketing of the rear suspension rates. Our 150-to-180-pound riders had to use the lightest preload, which doesn't leave any springing options for those in the 150-and-under category. And since the 150-to-180 group also had to use maximum damping, the heavier/faster guys have no needed damping options. What's more, even the 150-to-180 people probably would want more damping *and* preload on a brutal, hard-surfaced track, but the lack of the former precludes the use of the latter.

Okay, maybe I'm splitting hairs; but with all the sophisticated machinery that can be bought or built these days, hair-splitting is what makes the difference between first place and commonplace. —*Paul Dean*

• Say, this racer is only brilliant. It'll sure make you quake in your boots the first time you fire it up, though. Richter-scale vibrations from the engine compartment don't usually intimidate me, but when you mix Open-class-size thumps with the crackling throttle response of a strong-running 250, I tend to figure that there's trouble brewing as well as horsepower.

After learning the art of survival on this bike, though, I soon discovered the advantages of a crisp-running big-bore motor. Sure, Open-class motors give you plenty of throttle response, but it comes in divot-ripping chunks which tend to amplify your mistakes. The sustained rush of horsepressure from the CR450R, however, gives me the kind of instantaneous feedback from the rear wheel that I need to keep track of a bike this fast. So my mistakes become less serious.

I guess there's doubt in some quarters as to whether the particular way a CR450R puts together a lap will prove any faster than the way other big bikes put together a quick one. But for me, there's no question. Once I learned to cope with the rush of rpm, the CR450R became the best Open-class choice for me. After all, a brilliant race bike is one that makes you feel brilliant. And that's the magic the big-bore Honda racer produces. —*Michael Jordan*

Continued

Honda CR450R

SPECIFICATIONS:

Distributor: American Honda Motor Co.
100 W. Alondra Blvd.
Gardena, California 90247

CATEGORY: motocross

SUGGESTED RETAIL PRICE: $2098

ENGINE
Type ..... two-stroke vertical single
Port arrangement ..... one reed-valve-controlled intake, four transfers, one booster transfer, one exhaust

Bore and stroke ..... 85.0mm x 76.0mm
Displacement 431.3cc
Compression ratio (corrected) 7.1:1
Carburetion ..... one 38mm Keihin slide/needle
Air filter ..... washable foam element
Lubrication ..... pre-mixed fuel and oil
Starting system ..... primary kick
Ignition ..... flywheel-magneto CDI
Charging system ..... none

DRIVETRAIN
Primary drive ..... straight-cut gears
Primary drive ratio 2.500:1
Clutch ..... wet, multi-plate
Final drive ..... # 520 chain (⅝-in. pitch, ¼-in. width) 14/54:3.857:1

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	1.63	15.67	4.9
II	1.21	11.68	6.6
III	0.95	9.18	8.4
IV	0.79	7.64	10.1

SUSPENSION/WHEEL TRAVEL
Front ..... air spring, 41mm stanchion tube diameter/11.0 in. (279mm)
Rear ..... 4-way adjustable rebound damping, 10mm spring preload adjustment/12.5 in. (318mm)

BRAKES
Front ..... drum, double-leading shoe
Rear ..... drum, single-leading shoe, rod-operated

TIRES
Front ..... 3.00x21 Bridgestone Motocross M21
Rear ..... 5.10x18 Bridgestone Motocross M22

DIMENSIONS AND CAPACITIES
Weight ..... 236 lbs. (107kg)
Weight distribution ..... 47.3% front, 52.7% rear
Wheelbase ..... 59.5 to 61.0 in. (1511 to 1549mm)
Seat height ..... 37.5 in. (953mm)
Handlebar width ..... 33.3 in. (845mm)
Footpeg height ..... 15.8 in. (400mm)
Ground clearance ..... 12.1 in. (308mm), at exhaust pipe
Steering head angle ..... 29.5 degrees from vertical
Front wheel trail ..... 4.8 in. (123mm)
Frame ..... tubular chromoly steel, front downtube
Fuel tank ..... plastic, 2.5 gal. (9.5/)
Instrumentation ..... none

PERFORMANCE
Top speed (calculated) ..... 86 mph (138 kph)

WARRANTY: none

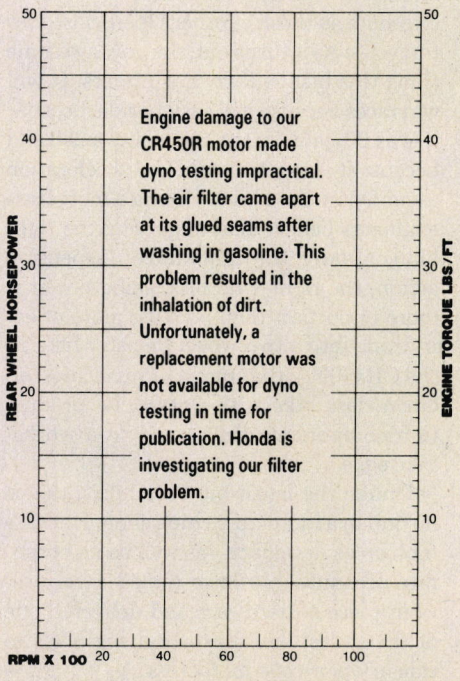
AVAILABLE COLORS: red

All weights and measurements are taken with machine unladen and fuel tank empty.

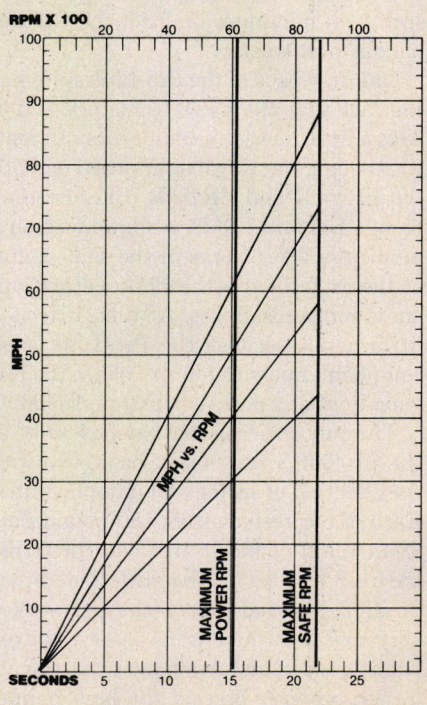
COMPARATIVE TEST DATA:

Make & Model	Horsepower	Wheel Travel Front/Rear, in.	Weight (fuel tank empty), lb.	Weight bias Front/Rear percent	Transmission, number of speeds
Honda CR450R	NA	11.0/12.5	236	47.3/52.7	4
Husqvarna 420AXC	NA	11.5/11.9	239	45.6/54.4	4
Yamaha YZ465	39.4	11.2/11.8	228	46.5/53.5	5
Kawasaki KX420	34.0	11.0/11.3	250	46.4/53.6	5
Maico 450M1	37.0	12.3/12.0	236	46.6/53.4	5
Can-Am MX-6 400	38.3	11.5/10.8	233	45.5/54.5	5

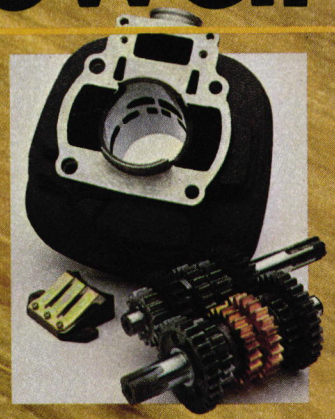
PERFORMANCE:



Engine damage to our CR450R motor made dyno testing impractical. The air filter came apart at its glued seams after washing in gasoline. This problem resulted in the inhalation of dirt. Unfortunately, a replacement motor was not available for dyno testing in time for publication. Honda is investigating our filter problem.



Play with firepower.



Our new RS-175 and 250 are built to play harder than the usual run-of-the-mill playbike. Take the mill, for example. It's a refined PE enduro-tough Power Reed™ engine. Which means similar cylinder porting, crankshaft assembly and flywheel rotor. Close-ratio 6-speed gearbox is PE-bred, too.

Also designed for hard playing are the frame and suspension. Competition-type frame is rigid and lightweight for superb control and handling. Long-travel suspension boasts leading axle forks up front and laid-down gas/oil shocks in back.

Other serious features on these serious bikes include full-floating rear brake, maintenance-free PEI ignition and motocross-type chain guide.

So you see, these machines are not mild playbikes. Nor wild race bikes. The RS-175 and 250 are something else.

Suzuki 1981 SUZUKI® The Performer.

Member Motorcycle Safety Foundation. Ride with care. Always wear a helmet and protective apparel. Ride only where authorized and respect the environment.

KAWASAKI GIVETH

Into a world of motorcycles that have lost their way. Amid soaring weight and multiplying valves, Kawasaki introduces a concept in engineering far more advanced than them all: Simplicity.

Witness the KZ750LTD. Built like its acclaimed brother, the 750 Standard. The bike that Cycle Guide said, "*. . . assaults high speeds with intelligence and finesse rather than bulk and brute strength.*" Intelligence starts with the engine. Its two valve per cylinder design and narrow configuration contribute to an overall weight that's 50 pounds lighter than its closest competitor. It delivers more net horsepower per pound. And something else: reliability. Simpler *is* better.

I BY TAKING AWAY.

But simpler isn't always easier to achieve. Take the chassis, a product of advanced stress analysis techniques and computer welding systems that a few years ago didn't exist. The result is a design that's light in weight, yet uncompromised in strength.

Everything about the 750LTD is unsurpassed. Its features, which include electronic ignition. Its handling, supported by a fully tunable suspension system. And its performance.

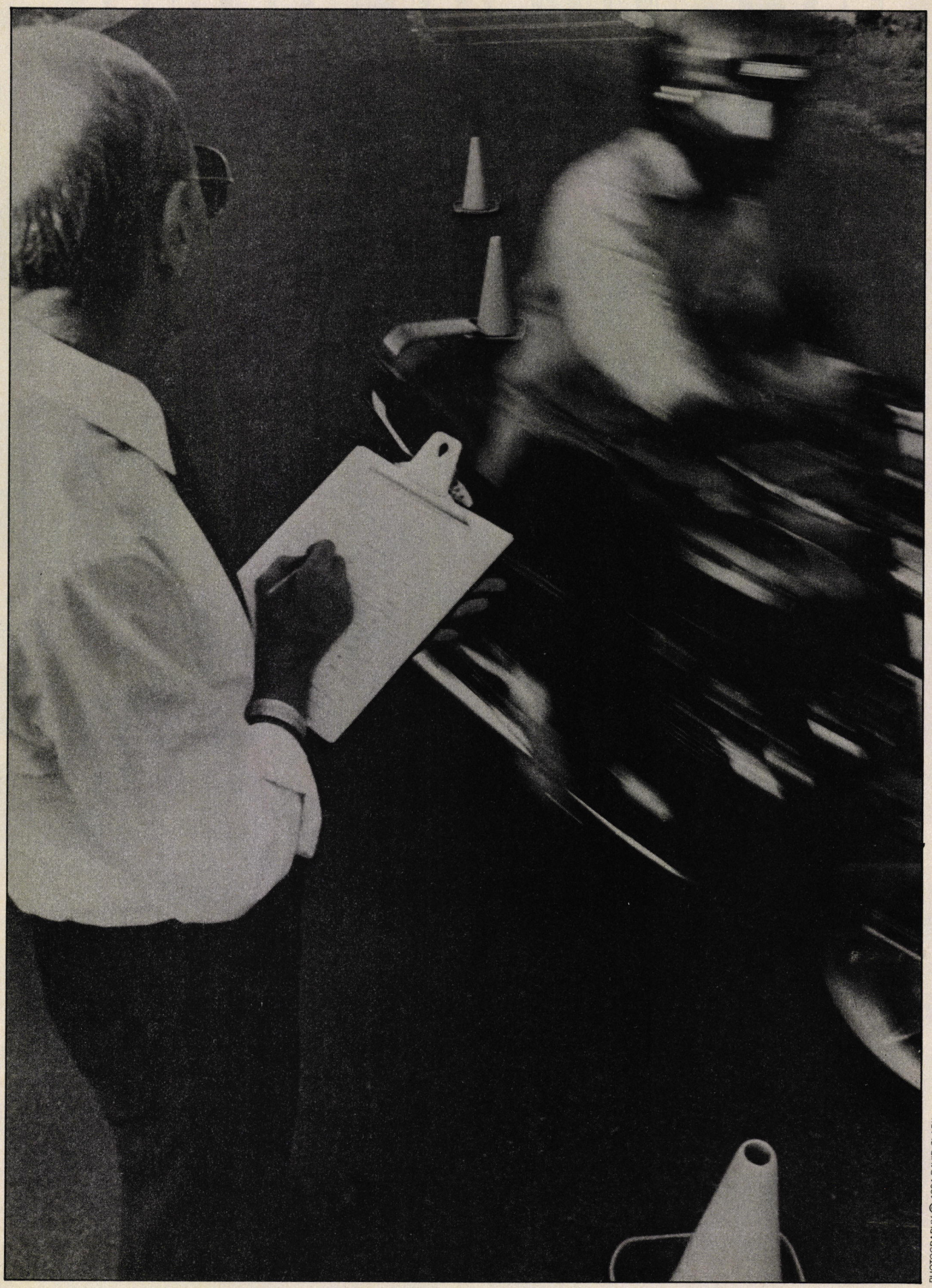
All in all, the 750LTD is unequaled, and not soon to be challenged.

If that sounds a little righteous–so be it.

Kawasaki

Let the good times roll.

Specifications subject to change without notice. Availability may be limited. Mirrors included as standard equipment. Kawasaki believes in riding safely. Check local laws before you ride. Member, AMA and MSF.



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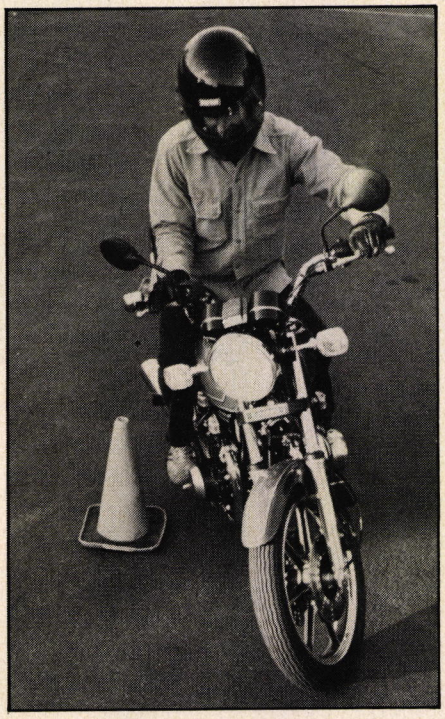
Making The Grade At the DMV

The Feds are making it more difficult to get a motorcycle license. Here's what to expect on your next visit to the Department of Motor Vehicles.



BY MERRY MACTAVISH

• In the old days, say 25 years ago, going down to the local Department of Motor Vehicles to get a motorcycle license was practically unthinkable. A motorcycle was something to throw your leg over and then gas it to Emmie Sue's on Saturday afternoon when she and her mother were doing the week's baking. Only the non-cake-eating, non-beer-drinking ninnies in overalls would straight-arrow it down to the DMV with their motorscooters.

Things have changed. Today Emily rides over on her R65 and offers you a lift down to the DMV for testing day. She took her test two years ago and said it was a piece of cake. All she had to do was take a ride around a vacant parking lot and answer a few dumb questions. What she doesn't realize, however, is that the Feds have been doing their motorcycle homework—a whole new batch of recommended procedures for issuing driver's licenses to bikers has been released by the federal government. For one, that means you could be in for a difficult time if you want to get a motorcycle license these days. And for another, it means the inauguration of the first legitimate, federally sponsored traffic safety program for motorcycle riders.

Before 1960, few states required either tests or licenses for motorcyclists. When the Highway Safety Act was passed in 1966, though, it was evident that motorcycles had finally caught the notice of those in authority. The Act established what came to be known in 1971 as the National Highway Traffic Safety Administration. This agency developed a set of Highway Safety Program standards, some of which were meant for motorcyclists. So for the first time, state DMVs were urged to require special testing for motorcycle licenses. Unfortunately, only six states complied with this request. Still, two years later a study commissioned by the National Highway Safety Bureau concluded that motorcyclist testing and licensing "offered the best long-range, cost-effective motorcycle accident countermeasure."

It's this crucial point that lies behind the recent revisions in the federal government's recommendations for motorcycle licensing. For 14 years the Feds have understood that motorcycle licensing has by far the greatest impact on motorcycle safety. And now, after years of stalling with half-baked measures like helmet laws and 85-mph speedometers, they are finally going to do something about it. Though its recommendations aren't binding, NHTSA's new written test and new riding skill evaluations will have a tremendous impact on who will and who will not be able to acquire a motorcycle license. And you must admit that our best defense against measures like helmet laws is the closer control of licensing procedures that these recommendations produce.

A booklet published by the Motorcycle Safety Foundation in 1974 called *Motorcycle Task Analysis* is the Bible for recent innovations in licensing procedures. The Feds created their *Motorcycle Operator's Manual* using it as a basis, and as a result you'll be amazed at how comprehensive your next written test for a motorcycle license is, compared to the former one. The manual itself sensibly prescribes practice as the only way to learn to ride a motorcycle. Also, it provides some clues for beginners, supplies some special emergency suggestions and adds some hints for successfully completing the riding test. Naturally, it covers all the items likely to be found on written tests for a license.

While the MSF's 1974 study also helped generate the new riding tests you might encounter on your next trip to the DMV, a 1976 California project provided a true proving ground. As a result, the skill test has changed from a token ride around safety cones to a serious challenge to real-life riding skills and judgments called MOST (Motorcycle Operator Skill Test). Two pamphlets—the *Basic Practice Guide* and *Advanced Practice Guide*—clearly explicate and illustrate the motorcycle operations required.

A look at these pamphlets uncovers a real effort to organize motorcycle riding skills into an understandable format so clear that even DMV drones can understand it. Yet this is at once the test's strongest and weakest feature. Because the diagrams and the words lay out the course of each test in measurable distances, the test can be more objective than before. This also means, however, that a state DMV must establish an identical testing course and staff it with people qualified to evaluate riding skills—which is precisely

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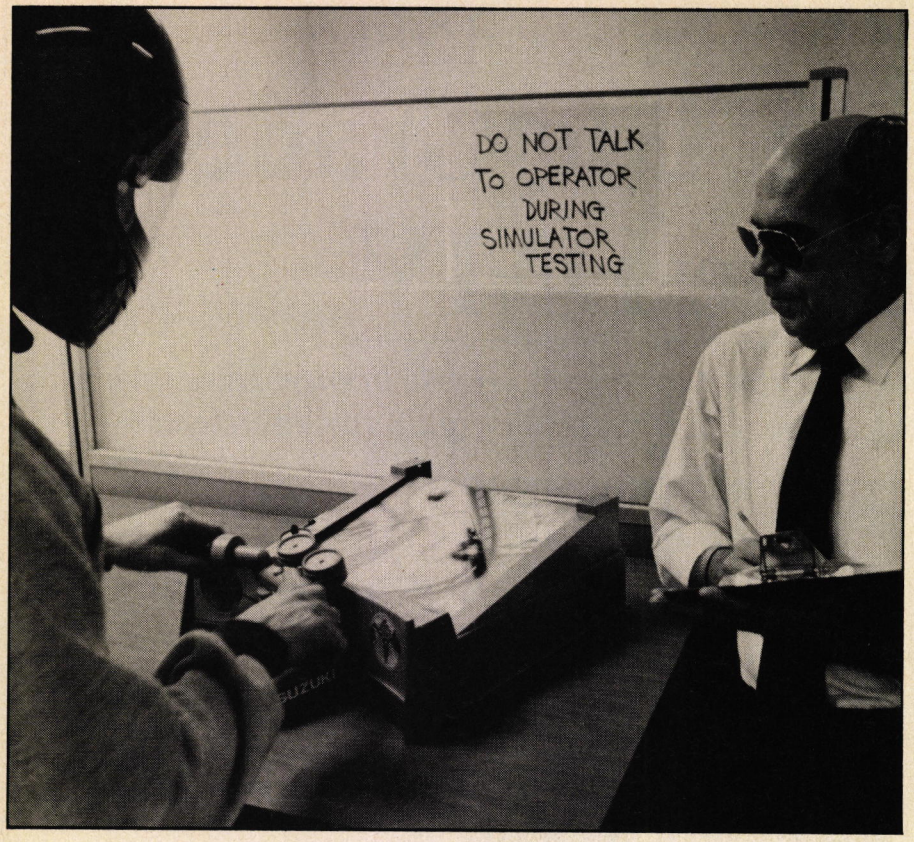
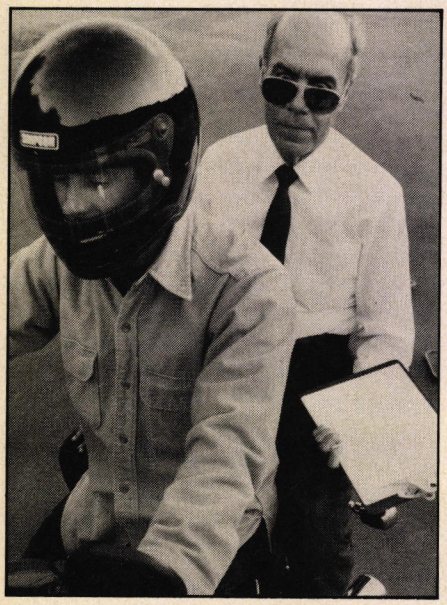




the reason why riding tests have been so simplistic and arbitrary in the past. Still, the MOST at least attempts to examine a wider range of riding skills than before.

If these written and skill tests seem to be a logical extension of existing licensing programs, the Motorcycle-in-Traffic test (MIT) is different. For the first time, prospective motorcyclists might be tested under the same conditions as car drivers. And because the procedures are somewhat the same as a car test, this MIT could become the most common test of riding skill. The test itself is composed of 21 situations that define each riding skill as precisely as possible, so the overall result is subject to little in the way of arbitrary judgments by the DMV examiners.

The accompanying sidebar gives you a closer look at the riding skills that are likely to be a part of any new rider's attempt to qualify for a motorcyclist's license. Yet even for those of us who are not new riders, these tests have great significance. They are the first apparent recognition that the Hurt Report (*CG*, June 1979) and other studies were right; that is, a disproportionate number of riders involved in accidents don't even hold motorcycle licenses. And that means that licensing could be the best means of improving motorcycle safety—just as the NHTSA admitted in 1968. These new licensing tests might simply be recommendations for the time being, but at least they indicate that the federal government believes accidents can be prevented. It is the attitude that accidents *cannot* be prevented, on the other hand, that leads to such half-way measures as helmet laws.

While there is no end in sight to anti-motorcycle legislation, the new recommendations for licensing procedures give us reason to hope. Whenever federal bureaucrats can wade through the red tape and reach their objective—which in this case is insuring that people who ride motorcycles are not a menace to navigation—it is surely an occasion we can celebrate. •

Riding The New Wave Of Tests

• While we can't tell you exactly what to expect the next time you renew your motorcycle license, we can suggest that it probably won't be the same test you took last time. NHTSA's new tests in most cases will be used as models to assist individual states in revamping their old exams. Changes based on these tests are expected to seep gradually into old systems. The best advice for someone about to take a test is to read the current manuals first. States must provide the information necessary to answer the questions they ask.

Off-road or parking lot tests are still the most common evaluation of riding skill. The MOST test consists of nine sub-tests that proceed from simple to complex skills. In the first skill test, "Starting and Moving Up a Hill," a rider can receive penalty points for not being able to start the engine or to keep it running, for allowing the motorcycle to roll backward and for using his feet for balance once he's moving.

The next four skills are all done on a pre-

1. Starting and Moving Up a Hill

This exercise consists of starting the motorcycle on a hill with a 12 degree incline. It tests a rider's ability to restart the bike in traffic on a grade and move out safely.

2. Sharp Turn

In this exercise, from a stop position, the applicant makes a sharp turn at low speed while staying inside a five-foot path. It tests a rider's ability to control the motorcycle in a restricted path while making a right turn.

3. Accelerating in a Turn

The applicant accelerates normally while following a three-foot-wide right-hand curved path which approximates a normal roadway curve. This exercise tests a rider's ability to control the motorcycle while turning and accelerating.

4. Slowing in a Turn

The applicant slows while following a three-foot-wide left-hand curved path. This exercise tests a rider's ability to control the cycle while slowing in a turn.

5. Normal Stop

In this exercise, the rider is required to stop with the front tire in a designated area. This tests the rider's ability to perform a precise stop.

scribed circuit: the sharp turn, accelerating and slowing in a turn, and stopping normally. It is important in these maneuvers to stay within the prescribed path during a turn, travel at the required speed and to stop inside the designated area without skidding.

All of the last four skills require a slightly higher degree of control over the motorcycle as well as good judgment. In "Turning Speed Selection," the rider decides the fastest speed to go around a curve safely. In the next test, the rider moves at 20 mph in second gear and must be able to stop quickly and safely when given a signal. The motorcyclist is again riding at 20 mph in the "Obstacle Turn" when he is signalled by a light to turn quickly to the right or to the left, safely staying within the lane. The final exercise combines turning a curve at 15 mph with stopping quickly and safely within the lane.

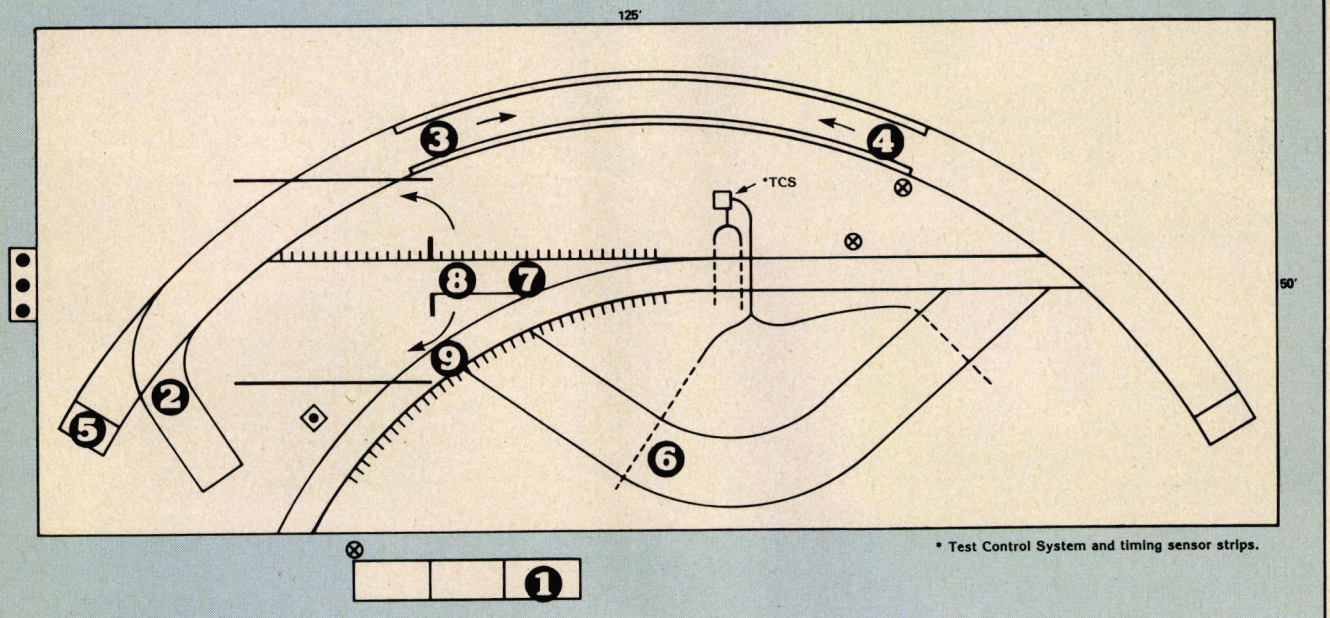
The Motorcyclist-in-Traffic test not only tests motorcycle riding skills, but those skills also must be second-nature enough to allow the rider to concentrate on moving safely through traffic. The route averages three to four miles, and the examiner follows behind, giving instructions over a one-way radio to the biker. The examiner could be riding a motorcycle or he might be following the would-be licensee in a car. The MIT advisors recommend that an eight-channel transceiver be installed in the examiner's vehicle. A page receiver with volume control, external speaker jack and clip-on bracket is fitted to the licensee's belt during the test. The receiver can fit into a pocket and the external speaker can also be hooked onto a collar or goggle strap.

The test itself is divided into "Roadway Situations" and "Traffic Test Situations." Twenty-one separate actions must occur during the test, each categorized and rated according to how many times it occurred and how important it is for safe riding. The test, as run in Oklahoma, lasted three or four times longer than the state's existing rider test but took about the same amount of time as the automobile-in-traffic test. An important part of the evaluation was the consistency of the results obtained by different examiners. The MIT was deemed a much more reliable and objective test than the skill test previously used in Oklahoma.

A panel of motorcyclists evaluating the MIT test in that state considered it far superior to any existing test, even though such a system would mean the complete overhaul of a DMV's testing and licensing program. If, in time, statistics indicate a significant decrease in the motorcycle accident rate in Oklahoma, perhaps other states will consider adopting the MIT.

Probably the most extensively used new test is the written exam based on the Motorcycle Operator's Manual. Because it is written, it is easy to administer and doesn't require any expensive gadgets. The 25 multiple-choice and line-drawing questions ought to be a cinch to solve for anyone who studies the new manual. It starts with basics that any beginner should know, including pre-riding inspection and proper rider protective gear. The book clearly emphasizes safety, and doles out practical advice on riding on dangerous surfaces, as well as a special section on handling emergencies. MOM would make a good reference handbook for any moderately experienced rider.

MOST riding evaluation is the skill test likely to dominate DMV habits for the next few years. Ideally, local administrators will have the imagination either to adapt parts of the test as they exist or to carry its concepts over in revising their current exams. Another DMV goal should be to provide motorcycles for licensees to use and to hire examiners who know how to ride motorcycles. NHTSA could be asking too much of the DMVs in expecting them to go to such lengths to adopt credible motorcycle testing. But it shouldn't be too much to expect consideration of what could be the most effective preventive medicine yet for motorcycle traffic accidents. —*Merry MacTavish*



* Test Control System and timing sensor strips.

6. Turning Speed Selection

The applicant accelerates into a curved eight-foot-wide path and rides it as quickly as safely possible. This exercise tests the rider's ability to judge the arc, set a speed and maintain control.

7. Quick Stop Straight

In this exercise the rider accelerates in a straight path until a stop signal comes on. The applicant must stop in the shortest possible distance. This demonstrates a rider's ability to come to a fast stop using both brakes.

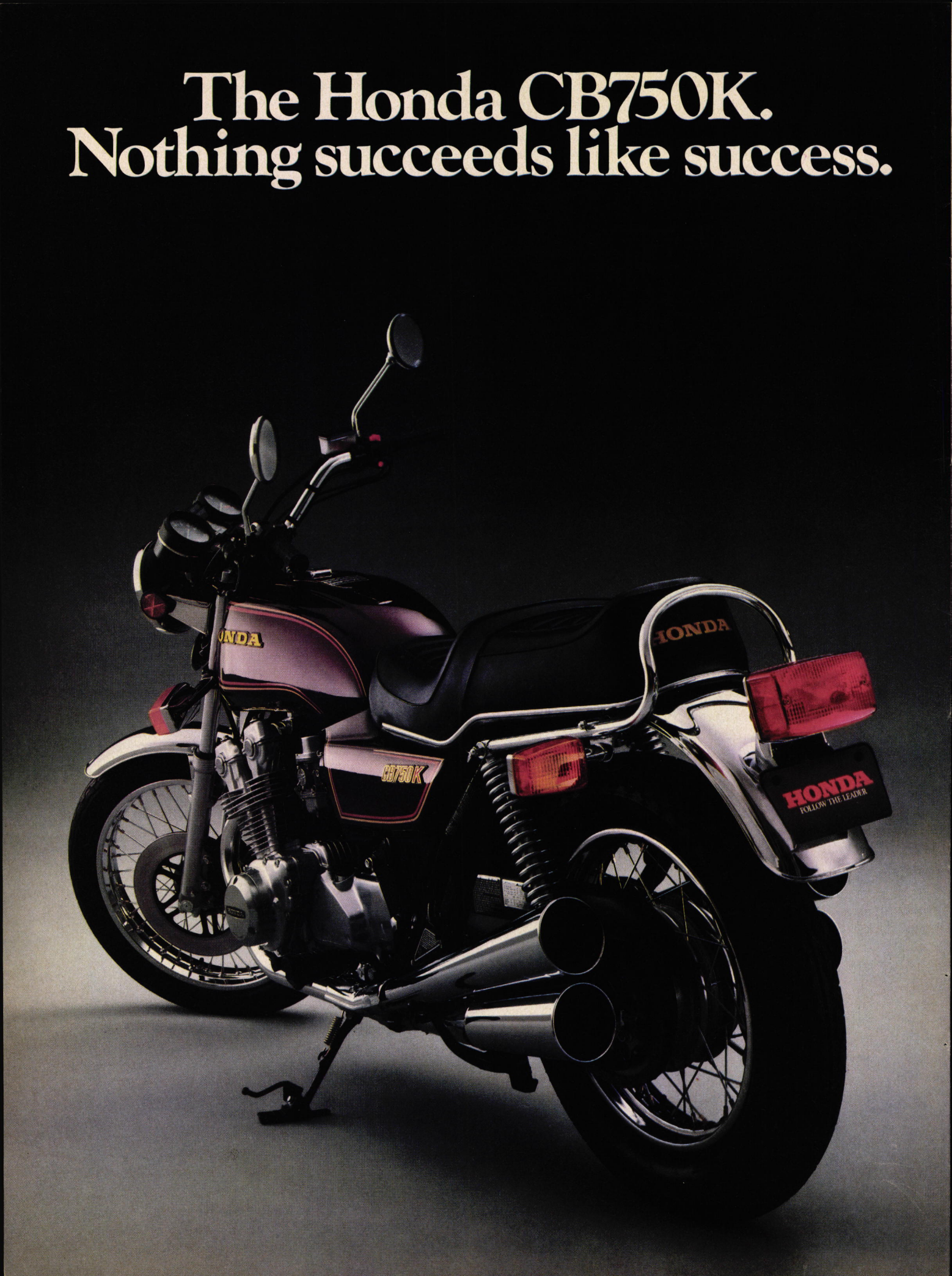
8. Obstacle Turn

The applicant accelerates normally along a straight path until a signal light (left or right) is activated. The applicant makes a quick turn in the indicated direction in order to avoid a barrier line painted across the course and then turns back before striking a painted sideline. This exercise tests a rider's ability to turn the cycle quickly in order to avoid an obstacle.

9. Quick Stop Curve

In this exercise, the applicant must stop in the shortest possible distance while following a left-hand curve. This exercise tests a rider's ability to make an emergency stop in a curve (e.g. when going around an obstacle is impossible).

The Honda CB750K. Nothing succeeds like success.



Over ten years ago Honda unleashed a new model upon the world of motorcycles. And changed the way that world thought about performance.

That bike was the Honda CB750. The first four-cylinder Superbike.

Since that time the Honda CB750 has been modified, improved and refined. But the concept has remained the same. High performance. Classic styling. Honda engineering.

By any measure, the CB750 has been a huge success.

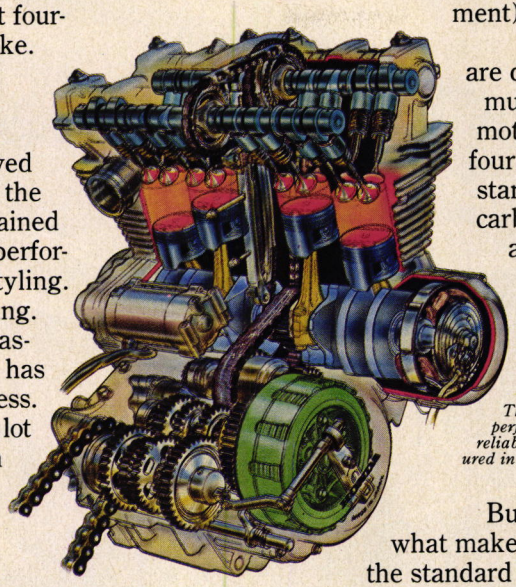
There are a lot of other 750's on the road these days.

But for many riders, the best one is still the one that started it all. The Honda CB750K.

A classic motorcycle starts with a classic engine.

How is it that an engine this advanced can be called classic?

Innovative, perhaps, with its DOHC, 16 valve design. And Pentroof™ combustion chamber design for clean, efficient combustion. Powerful, certainly, since this engine is based on both the CBX and Honda's European endurance road racing design experience. And as trouble free as transistorized pointless ignition (which never needs adjustment) can make it.

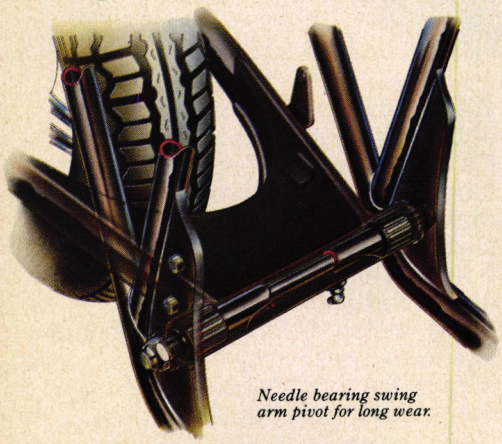


The engine by which performance and reliability are measured in the 750 class.

Cam chains are quiet, dual multiplate automotive type. And four 30mm constant velocity carburetors with an accelerator pump provide a quick, crisp throttle response.

But all that is not what makes this engine the standard against which other 750cc engines are measured.

It is the years and miles Honda riders have put on engines like this one that made its reputation.



Needle bearing swing arm pivot for long wear.

Handling that can handle the way you ride.

No two riders are exactly the same.

Some like it hot. A quick run down a twisty canyon road. And some like a cool breeze blowing over a fairing windshield as they set out for a tour of the town or the country.

So how does one bike keep up with all the different types of riders?

It adjusts. The CB750K's air/oil front forks have dual low friction Syntallic™ bushings to keep things smooth. But that's just the beginning. The forks are also air-adjustable through one simple equalizer fitting. To suit your riding style.

In the rear are new, Honda design Variable Hydraulic Damping™ shocks with five spring preload settings. And a needle bearing swing arm pivot which allows both smooth action and precise alignment.

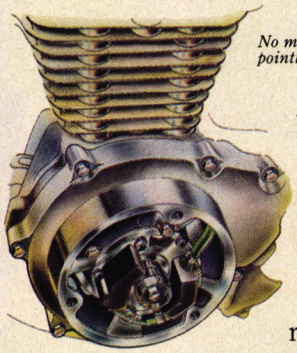
It looks just like what it is. A proper motorcycle.

Times change. People change. Motorcycles come and go every year. But the Honda CB750K is not just a passing fancy.

From its bright new halogen headlight to its dual bulb taillight, this bike is all classic motorcycle.

A tasteful, graceful design that won't grow old on you before the warranty is up. Classic wire spoke wheels. Translucent instrument faces that glow instead of glare. High performance four-into-four megaphone-style pipes.

Even a 5.3 gallon tank which will look mighty good to you between fillups. And a vacuum operated fuel valve you don't have to remember to turn off between rides.



No maintenance transistorized pointless ignition.

The CB750K has been detailed right down to air cushioned passenger footpegs. A small matter? Not if you're a frequent passenger.

But whatever kind of rider you are, high performance, touring, commuting or a little of everything, before you decide on a motorcycle, bear just one thing in mind.

If the CB750K weren't such a fine machine, there wouldn't be so many of them around.

HONDA

FOLLOW THE LEADER

ALWAYS WEAR A HELMET AND EYE PROTECTION. Specifications and availability subject to change without notice.

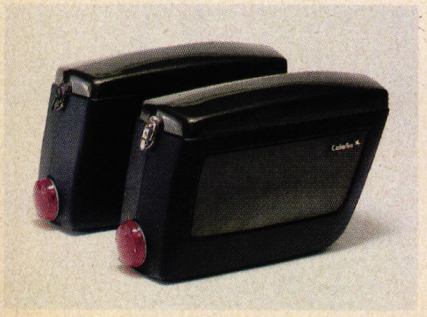
©1981 American Honda Motor Co., Inc. For a free brochure, see your Honda dealer. Or write: American Honda Motor Co., Inc. Dept. 547, Box 9000, Van Nuys, California 91409.

Calafia's New Integral Touring Systems ...

Calafia "Fats" Saddlebags. First choice for touring riders. Enormous capacity, integral tail/stop lamps.

Calafia Roadrunner Saddlebags. For performance and sport motorcycles. Contoured to fit low, yet clear the upswept exhausts.

Calafia Roadrunner Travel Trunk. The perfect travel trunk for the casual or high performance rider. Holds full coverage helmet.



Calafia Slims Saddlebags. Another option for the touring rider who needs that narrow profile with full capacity.

Calafia Aspencaddy. One of the largest capacity travel trunks for the demanding touring rider. Optional backrest pad and dual chrome rails available.

Classic styling, functional capacity and reliability are integral to all Calafia products. Of equal importance, are the key components that make up these touring products, such as textured Rotomold bottoms, hi gloss ABS side panels and lids with optional polyurethane custom color match; a unique positive lid sealing system to endure the toughest weather you can handle.

With over 10 years experience, Calafia remains the leader in the design and production of quality touring systems for you.

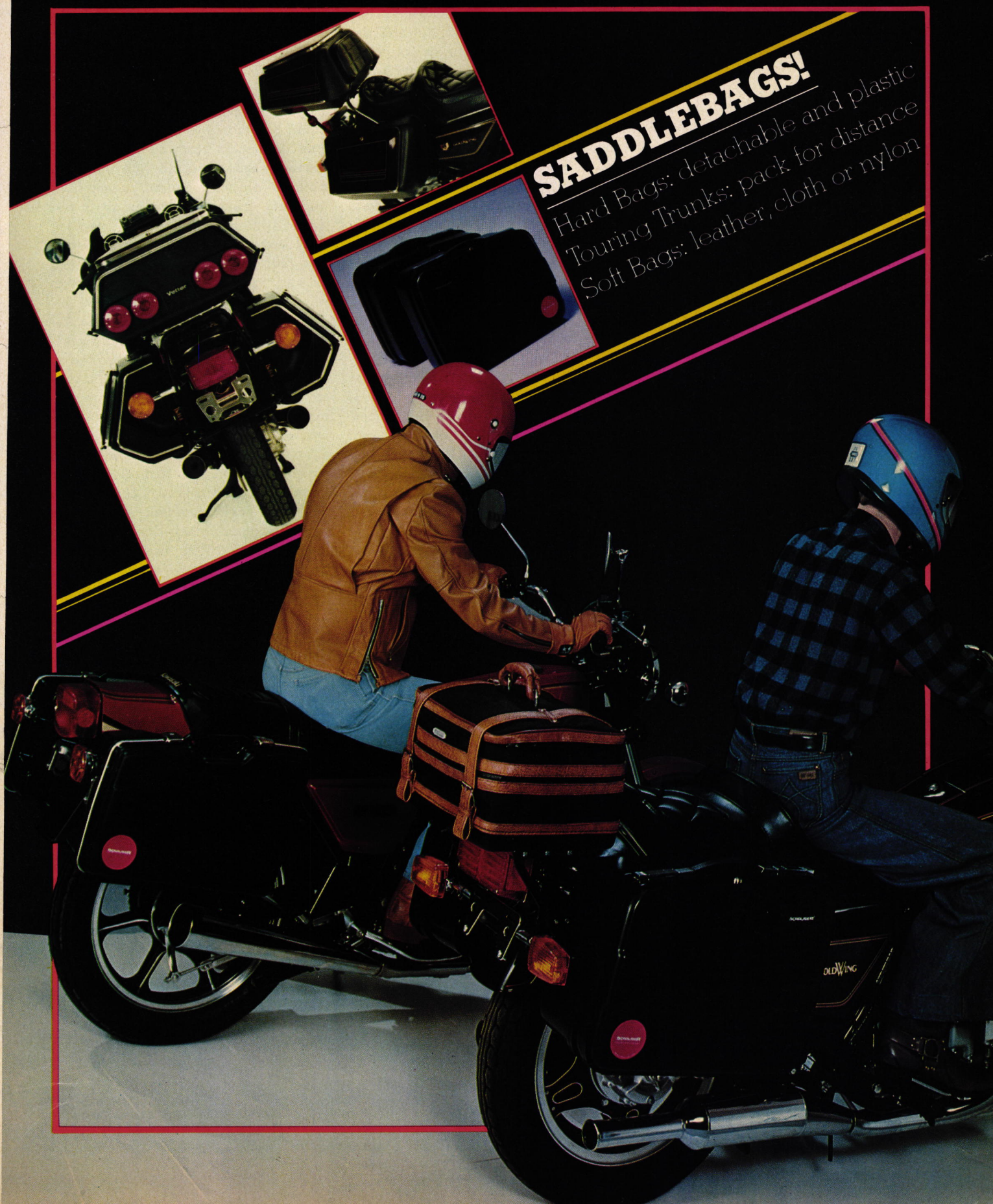
the intelligent choice

Calafia

A Division of Impact International, Inc.

Cycle Guide's

SPECIAL EDITION



SADDLEBAGS!

Hard Bags: detachable and plastic
Touring Trunks: pack for distance
Soft Bags: leather, cloth or nylon

SADDLEBAGS

and Travel Trunks pose a problem for the potential purchaser because the selection is large and varied, but a neighborhood dealer usually can't afford to stock—or display—more than the barest minimum of items. The touring boom of the Seventies has given rise to a mind-boggling array of bolt-on luggage designed for almost every bike imaginable, but the question for customers has been where to get the hard information necessary to make a decision *before* buying.

Which is where this Special Edition comes in. On the following pages we've assembled photos and product descriptions of most of the aftermarket bags and trunks, a compendium complete enough, we think, to satisfy the most discriminating taste. Whatever your bike bent—be it long-haul touring or short-trip commuting—there are bags and trunks to suit, and they're all annotated herein.

The first step toward untangling the accoutrement you need from the selection available is to ask yourself where you'll be going. Bags and trunks are first and foremost utilitarian items, so defining the use to which they will be put is of primary importance.

There are "soft" bags for the touring camper or around-town rider, with adjustable straps to assure comfortable and secure mounting to virtually any bike. Constructed from a variety of fabrics from canvas to PVC nylon, and even vinyl or leather, their main virtues are convenience, detachability and low cost. Soft saddlebags do not require expensive bracketry or hardware, and soft travel trunks affix to any popularly available luggage rack. They are compressible, too, for easy storage when not in use, and will expand to accommodate bulky gear. Quality and durability vary within the genre, and should be checked carefully before purchase. Other pre-purchase considerations are weatherproofing, the number and position of pockets and the ability of flaps to close tightly. Soft gear is generally lightweight, which makes it less disturbing to a bike's handling characteristics, and portable, so areas under the seat are more readily accessible.

"Hard" bags and trunks, on the other hand, do have undeniable advantages—resale value not the least among them. A touring rig outfitted with color-matched luggage, brackets and hardware designed specifically for the machine, and the whole package compatible with a fairing is quite likely to reward its owner with as much equity as he has pride. Moreover, "custom fit" is a reality these days because most manufacturers make and sell hardware for not just one marque but a number of road-goers within each marque's line, and their luggage is therefore built to accommodate each bracket. Universal fittings are available, too, and their design is as sophisticated as the products for which they're intended.

Hard bags are generally constructed of acrylics (thermoplastic or polyethylene), ABS plastic, or fiberglass. The key in the manufacturing process is to make a lightweight but strong, useful but durable, attractive but practical product. Many colors are available, but most come either black or white with color matching as an extra. Brackets and hardware may not be included in the base price, so inquire beforehand—and make sure you get the right fitting for your bike. Weatherproofing, locking systems and hinge mechanisms are produced in a variety of grades to suit your needs and pocketbook. Some hard luggage is detachable—which can require different keys, locks and brackets—and some fixed luggage comes with removable soft-bag interiors as a option.

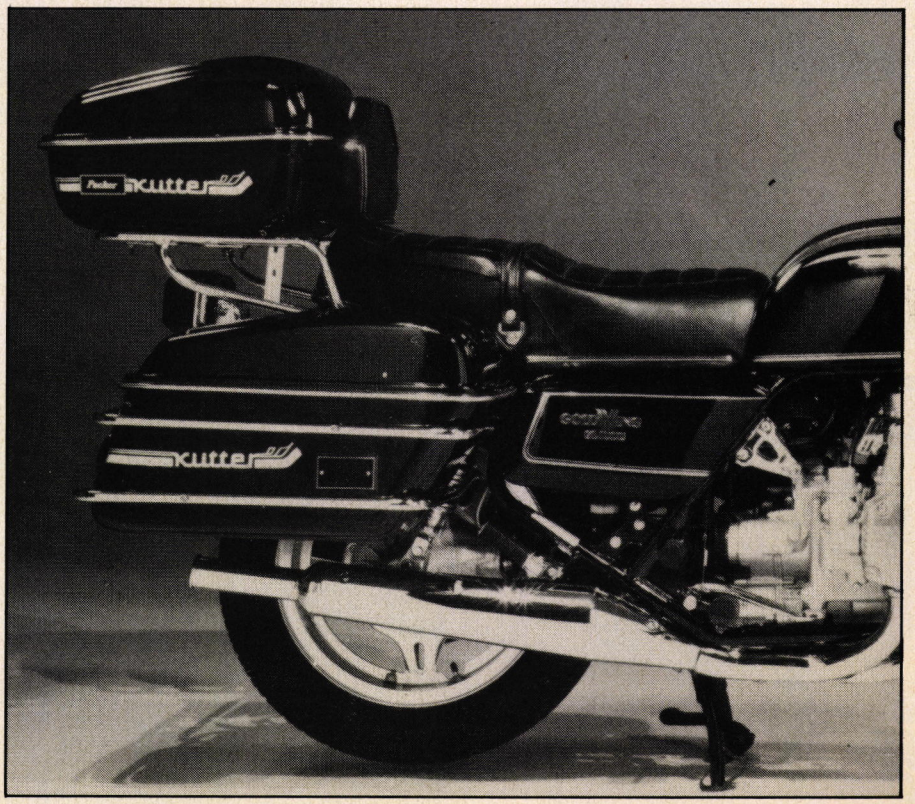
Hard travel trunks, as a rule, are made to complement a specific set of bags, since most manufacturers sell both. They share the same design features and materials as saddlebags, but require their own bracketry, usually a luggage rack, which must be purchased separately.

The carrying capacity of hard luggage is defined by its external dimensions. Questions to consider are: Will the bag or trunk hold a full-face helmet? Do you expect to carry outsized or bulky cargo? Do you tour with a lot of gear?

The fit-and-feel of luggage is another consideration. Will a passenger ride comfortably after the luggage is installed? Is there a back rest on the trunk? If detachable, are there suitcase-type handles for carrying convenience? Further—for those modern upswept mufflers—are there cut-out bags to fit?

Finally, most luggage today is designed with integral lighting to replace stock turnsignals and taillights. Make sure that all wires and connectors are long enough and designed for your bike. All lights should be DOT-approved.

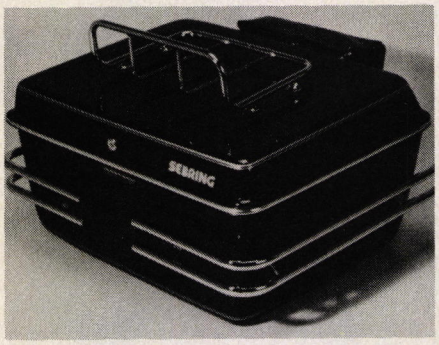
The manufacturers listed on the following pages have more detailed information about their products, so we've included their addresses for you to contact them. Catalog prices, where applicable, are also noted. In general, the products displayed here are top-of-the-line offerings from companies which also make smaller, more affordable units for a wide range of motorcycles, so if you don't find something that suits you—a veritable impossibility—don't hesitate to inquire further. With this CYCLE GUIDE Special Edition, there shouldn't be a disappointed bag-freak in the house.



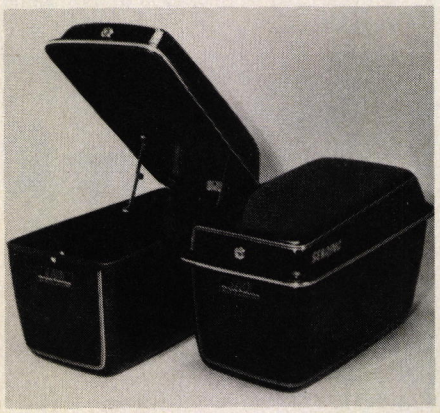
A&B Fiberglass Productions
15661 Producer Ln. Unit N
Huntington Beach, CA 92649
(714) 892-6649

Price: Tour Trunk $178.10
Saddlebags 140.85 pr
Interior Luggage 14.55 ea

The SEBRING Tour Trunk is an all-fiberglass unit with room for two full-face helmets. It comes complete with chrome rails, top luggage rack and padded back rest. Dimensions are 18"L, 12"H, 22½"W. Standard colors are black or white, and gelcoat color match with pinstriping is available for $21.90 extra.



SEBRING fiberglass saddlebags come either standard (shown) or cut-out for bikes with upswept mufflers. Painted interiors and chrome edge molding are standard features. Dimensions are 20"L, 12"H, 9"W. Colors are black or white, with gelcoat color match and pinstriping for $21.90 extra. A&B mounting brackets must be purchased separately for $175.75, and fit most popular touring bikes.

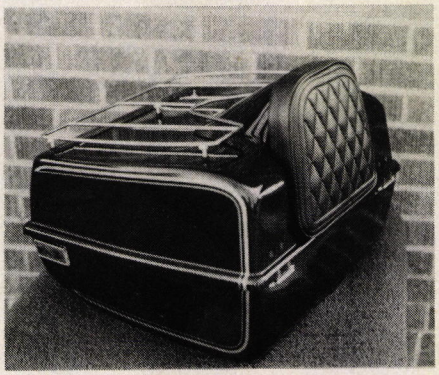


SEBRING interior luggage is made of heavy-duty nylon with nylon carrying straps and sturdy zippers. Fits both standard and cut-out saddlebags.

Accessory Research Engineering
5118 130th St. North
White Bear Lake, MN 55110
(612) 426-3268

Price: Travel Trunk $91.50 to 124.00
Saddlebags 315.00 pr

THE BOX by ARE is vacuum-formed of ABS plastic and comes in three sizes: Box I (2000 cu. in.), Box II (3000 cu. in.), and Box III (shown, 4000 cu. in.) The dimensions for Box III are 22"L, 17"H, 20"W. Standard features are a foam inner liner and side reflectors. Options include a built-in back rest ($13.95), chrome top carrier (about $18.95) and gold pinstriping ($10.95). Colors are black or white polyurethane paint; color match to most popular bikes is $35 extra.

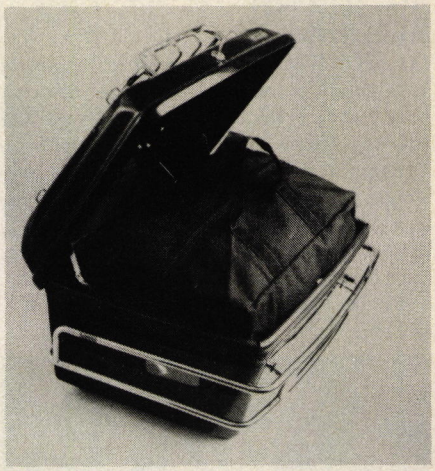


THE BAGS are also vacuum-formed ABS, and feature fully removable lids with front and rear locks. An inner lid provides storage space for small items and double-lip construction insures weatherproofing. They are completely detachable and offered in black or white. Color match is $60 extra. Supplied with all mounting hardware.

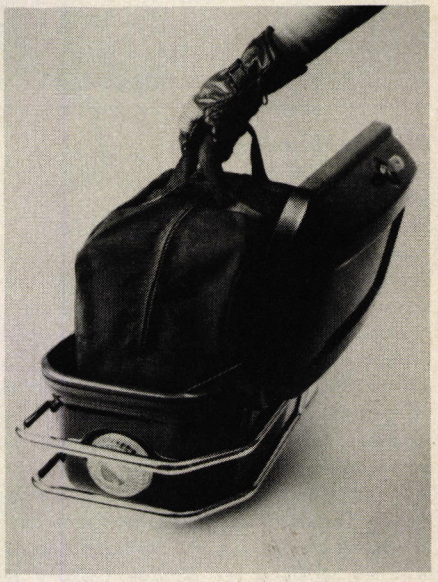
AMCO Manufacturing Corp.
7425 Fulton Ave.
North Hollywood, CA 91605
(213) 875-2470

Price: Travel Trunk $131.95
Saddlebags 260.00 pr (approx)
Tote Bag 60.45

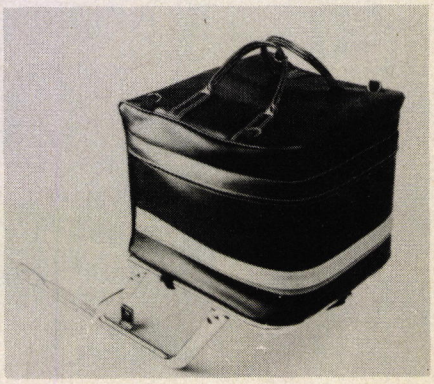
The DELUXE Travel Trunk is vacuum-formed of ABS plastic and comes standard with side reflectors, neoprene weather seal, cam-type lock and stainless steel hinges. It will hold two full-face helmets, with dimensions of 18"L, 13½"H, 19"W, and fits most luggage racks. Options shown are nylon liner bag ($26.35), chrome plated top rack ($38.45), and side rails ($43.95). Comes complete with mounting hardware; colors are black or white.



The ABS saddlebags come with rigid mounting hardware, integral turnsignals and side reflectors. Each bag has room for one full-face helmet with dimensions of 19"L, 12½"H, 10¼"W. Options shown are liner bag ($21.95) and side rails ($71.45). Colors are black or white.

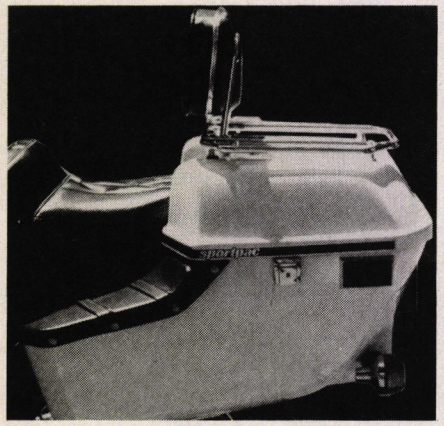


AMCO's Tote Bag is made of high-quality vinyl and comes in black or brown. It features a vacuum-formed cleat-lock base on the bottom of the bag for easy removal from any AMCO Deluxe luggage rack.



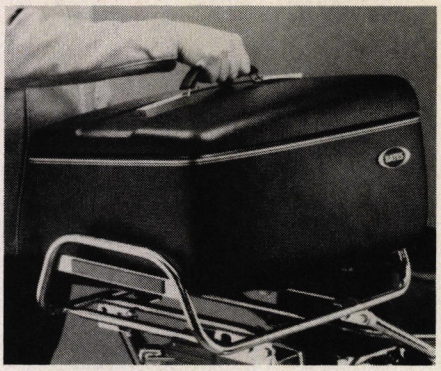
Anton Touring Equipment
Pier 5 North
San Francisco, CA 94111
(415) 982-6794
Price: $329.00

The SPORTPAC incorporates the features of saddlebags, travel trunk, luggage rack and back rest in a single all-fiberglass unit. The interior is fully finished, and the taillight, turnsignals and side reflectors come pre-mounted. The forward tonneau pockets feature locking covers. Dimensions are 29"L, 19"H, 22"W. Comes complete with mounting hardware; the only option is the back rest at $49.50. Fits most popular bikes from 400-1300 cc.



Bates Industries
P.O. Box 240-MB
Long Beach, CA 90801
(213) 435-6551
Price: N/A

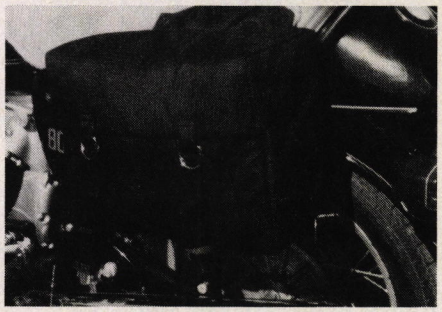
The Bates detachable saddlebags and Tote Box are constructed of ABS plastic and come in standard black with striping and a pebble-grain exterior. The bags and box feature a low-profile, top-loading design with Bates "stay-open" stainless steel hinges. A new mounting system incorporates vibration insulators for a smooth ride, and the bag mounts fold out of the way when the bags are removed. The detachables also feature a one-key locking system and have handy inside pouches for small-item storage. Options include chrome-plated wraparound guards, custom colors and smooth exteriors.



Bates also offers a complete line of solid-mount fiberglass bags and Tote Boxes (not shown) which accommodate the Soft-Pak carry-off luggage pictured. Send $3 for a color catalog and more information.

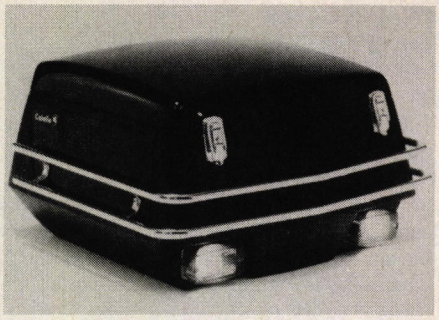
Beach's Motorcycle Adventures
2763 W. River
Grand Island, NY 14072
(716) 773-4960
Price: $85.00 (approx) pr

Rob Beach's soft saddlebags are constructed of Cordura fabric insulated with ⅜" poly foam. They are adjustable to all motorcycle seat widths and will mount to any bike with the ties provided. Bag closures are D-ring helmet-type; bag color is black only. Dimensions are 14"L, 11"H, 7"W.



Calafia Industries
540 W. Lambert Rd.
Brea, Ca 92621
(714) 990-2777
Price: Travel Trunk $199.95
Saddlebags 214.95 pr
Interior Luggage 32.95 ea

Calafia's ASPENCADDY trunk is constructed of high-impact polyethylene with ABS plastic side panels and lid. The built-in taillights are pre-wired, and extra-large chrome-plated brass latches secure the lid. Chrome dual siderails (pictured) and back rest are options, as is color matched paint to most '80 and '81 bikes. Dimensions are 21"L, 14"H, 25"W.

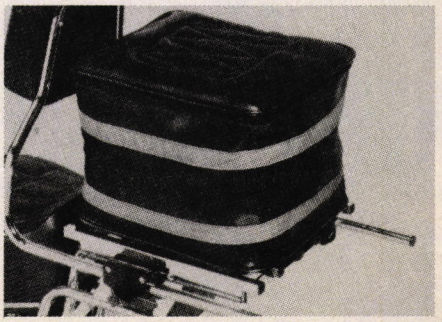


The FATS BAGS feature a textured finish with high-gloss ABS sidepanels and lids. Dimensions are 21"L, 14"H, 10"W. Calafia's "positive sealing" system provides weather-proofing, and taillight/turnsignals are integral for increased visibility. Hardware and color match extra.

The soft luggage is made of water repellant silver nylon, and is tailored to fit all Calafia bags and trunks.

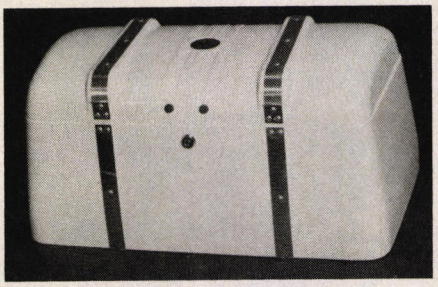
Connecticut Cycle Accessories
South Park St.
Willimantic, CT 06226
(203) 423-1611
Price: $41.95

The TOTE BAG is made for CCA's square- and round-tube luggage racks, but will fit most other designs. Dimensions are 12"L, 10"H, 14"W. The pliable, soft-wall vinyl construction allows the bag to be folded flat, and it removes for use as a duffle bag.

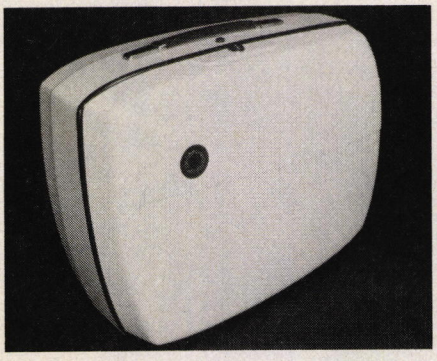


Craven Equipment
1441 W. Demeter
Freeport, IL 61032
(815) 235-2747
Price: Travel Trunk $60.00 to 110.00
Saddlebags 235.00 to 395.00 pr

The CALIFORNIA, at $110, is Craven's top-of-the-line travel trunk. As with all Craven trunks, it is constructed of high-quality fiberglass, and features a 38.6-liter carrying capacity. Options include a deluxe 10-pin lock with metal bands (shown) for $20 extra. Colors are black or white only.

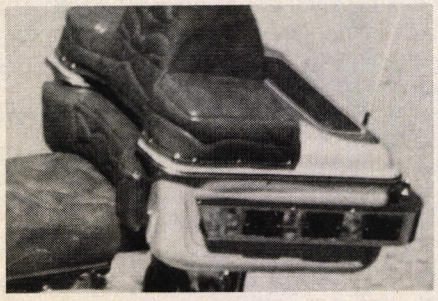


The CLASSIC panniers (shown) retail for $370, and like all Craven saddlebags are constructed of hand-laid fiberglass. They are completely detachable and feature high security locks and luggage handles. Capacity per pair is 31.5 liters; colors are black or white. The Craven Universal Carrier fits most bikes and comes in black ($120) or stainless steel ($135.)

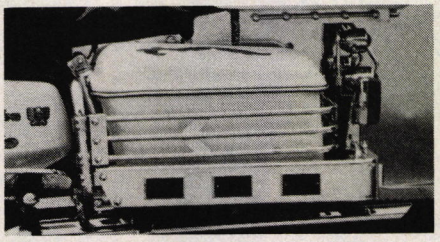


Custom Dressers
6421 Cox Ave.
Oklahoma City, OK 73149
(405) 672-7564
Price: Travel Trunk $154.93 to 181.41
Saddlebags 181.34 to 229.06 pr
Brackets & Hardware 237.46

The KING KADY by Custom Dressers is constructed of hand-laid fiberglass with a reinforced bottom for extra strength. The lid has chrome edge trim, and dual chrome side guards are standard. Dimensions are 24"L, 14"H, 27"W, with two smaller sizes available. Colors are black or white gelcoat, with color matching in aircraft-quality *Imron* (plus pinstriping) $162.75 extra. Options shown are lighted bumper ($181.32) and back/arm rest ($179.41.)

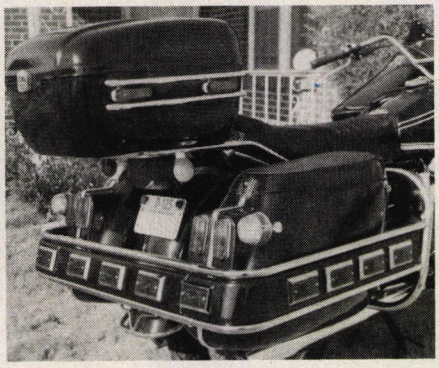


The NO LEAK saddlebags are made of hand-laid fiberglass with a chrome lid trim. The lid removes completely and features front and rear locks with double-lip weatherproofing. Dimensions are 20"L, 14"H, 11"W, with two smaller sizes available. Colors are black or white; color match is $186 extra. Catalog $3.



DB Products
1629 S. Yale
Tulsa, OK 74112
(918) 744-6067
Price: Travel Trunk $90.00
Saddlebags 242.00 pr

The TOUR TRUNK by DB is a lightweight, all-fiberglass unit with room inside for a full-face helmet. Options include a padded back rest at $30, plus chrome rails and lights (shown) at $104. Colors are black or white gelcoat.

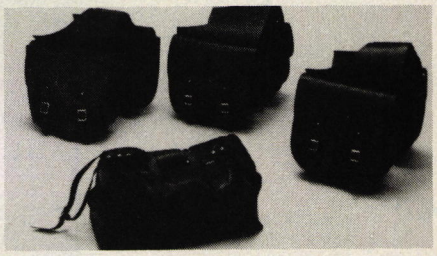


The BIG BAGS are also all-fiberglass, with a carrying capacity of one bushel each. Available for most popular touring rigs. Options shown include double locks ($15), chrome rails and bars ($135) and a fiberglass light bar insert ($104).

Drag Specialties, Inc.
P.O. Box 9336
Minneapolis, MN 55440
(612) 935-1000
Price: Canvas Bags $69.95 pr
Leather Bags 115.50 to 139.95 pr

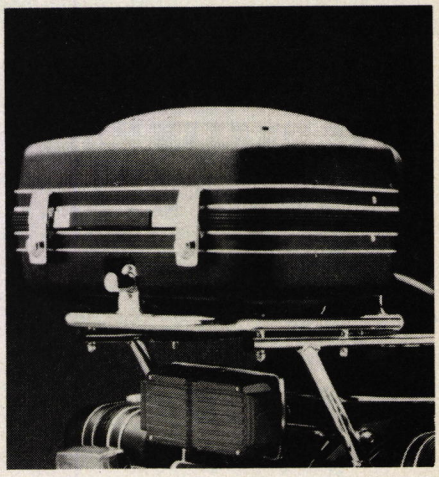
DS's Canvas Bags are hand crafted from material that is treated to be water- and flame-resistant and mildew-proof. All seams are heavy-duty nylon. Features include a nylon drawstring top liner, plus leather trim and straps. Dimensions are 13"L, 13"H, 5"W. Color is black only. The leather saddlebags

are hand crafted, hand stained and saddle-stitched from fine Latigo leather, with heavy-duty brass rivets at all stress points. Two leather tie-down straps provide secure mounting. The all-leather carry bag features an adjustable strap that can be snapped on or off, plus padded top and end handles. Available in black, or with bike logo "deep branded" into the leather.

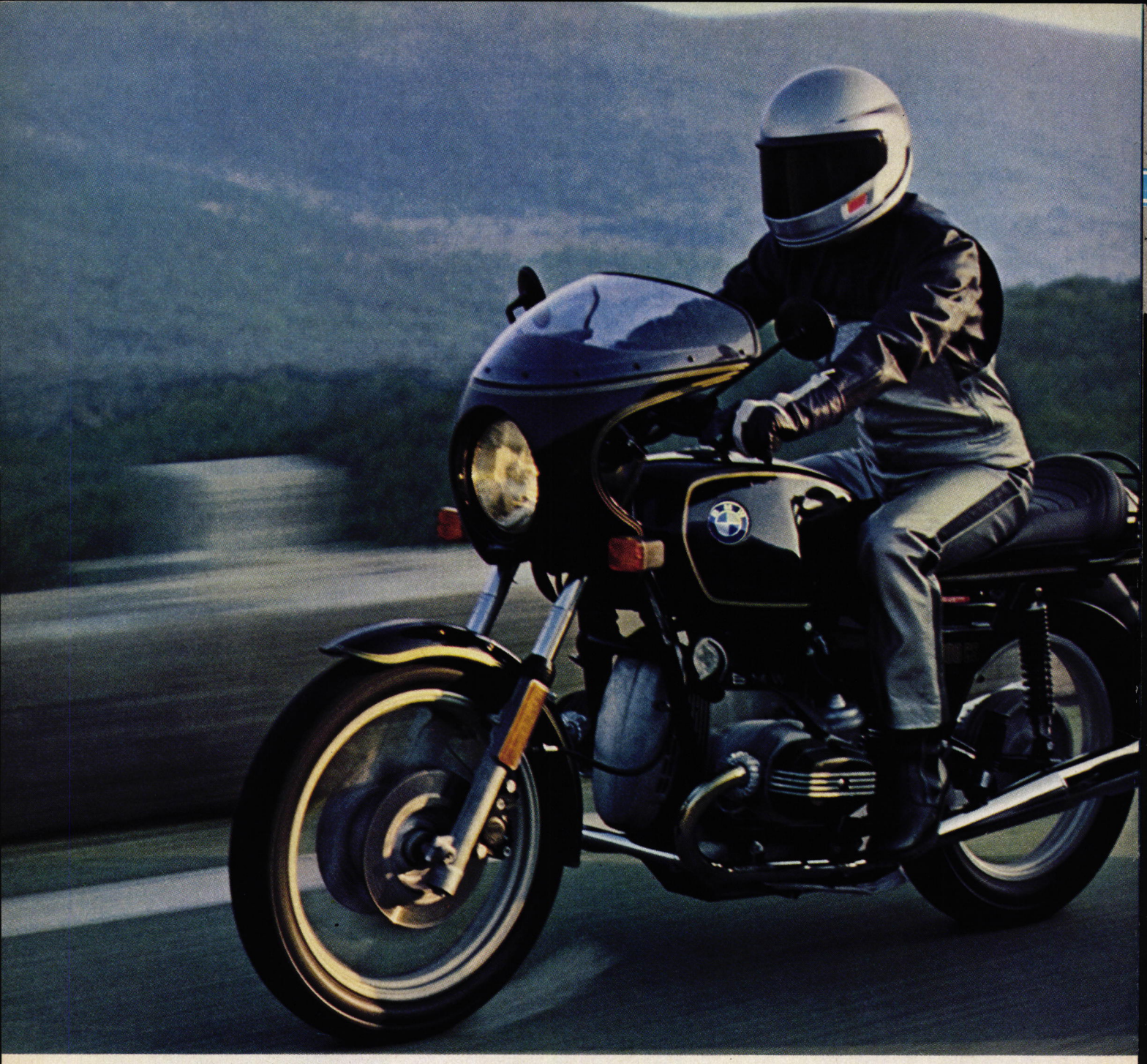


Hondaline
American Honda Motor Co.
100 W. Alondra Blvd.
Gardena, CA 90247
(213) 327-8280
Price: Travel Trunk $98.95
Detachable Saddlebag 189.95 pr
Fixed Saddlebag 196.95 pr

Honda's detachable Travel Trunk and Saddlebags fit Honda models CB650 through GL1100, and sell as a complete set for $273.15. Constructed of high-quality ABS plastic, the trunk has a capacity of 35 liters and the bags are spacious enough to hold a full coverage helmet. Required hardware are the trunk mounts ($12.95 to 20.95) and bag mounts ($100.) Options shown include a luggage rack ($22.50 to 39.95) and back rest ($38.95.)



The fixed saddlebags are made of pressure-molded fiberglass, and are color matched and pinstriped to Honda models



BMW. THE EXTRA MARGIN.

IS IT REALLY WORTH THE PRICE? ONLY IF YOU PLAN TO GO AS FAR AS BMW GOES.

A bike doesn't have to do 200 kilometers an hour for eight hours a day down the Autobahn to be enjoyed. But it's nice to know it was designed to.

In fact, BMW's Alpine Test Team puts in an average of 1000 kilometers a day for a month's time—on hairpin mountain turns and Autobahn speeds—to wring out every potential wrinkle. And to assure that extra margin of BMW response and endurance those mass production bikes simply cannot.

One Maximum Sports Philosophy: 2 BMW interpretations. The philosophy, quite simply, is to build a machine that exceeds the usual needs and abilities of its rider. And one that eliminates unnecessary weight and aerodynamically unsound extras.

The two BMWs shown here—the integrally faired BMW R100RS and the new R100CS pure classic sports bike with its European cockpit fairing—do more than span two worlds of serious sports biking. They add many measurable extra margins of performance and safety, at the same time subtracting weight.

Example: Brake pads made from a new, patented material have this year improved stopping under rain slick conditions by 40 percent as compared

to the abilities of conventional brakes.

Example: The new clutch design on this year's BMWs requires 30 percent less hand exertion in shifting.

Example: New all-aluminum cylinders reduce weight even further as they add to engine heat dissipation and endurance.

The point is, a sports machine built for maximum performance and longevity must be uniquely designed, uniquely built in every respect.

The rider-reported facts from the independent survey in our chart show how this athletic sports philosophy pays off for all BMWs.

Because each of them is designed by the millimeter to ride out the kilometers—and the miles.

The BMW Extra Margin Philosophy. A Few Facts.

(From *Cycle World* Owners Survey, 1980.)

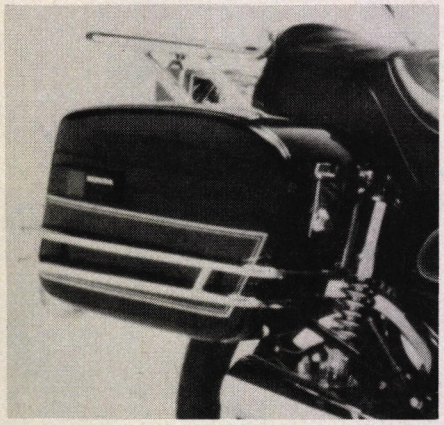
	BMW OWNERS:	4 LEADING OTHER BIKES (OWNERS AVERAGE):
Average miles owned—	21,000 miles	12,500 miles
Best feature: Reliability—	55%	36%
Ease of Maintenance—	85%	35%
Had to wait for parts—	6%	14%

BMW.

FOR ONE LONG SHINING MOMENT, STOP COMPROMISING.

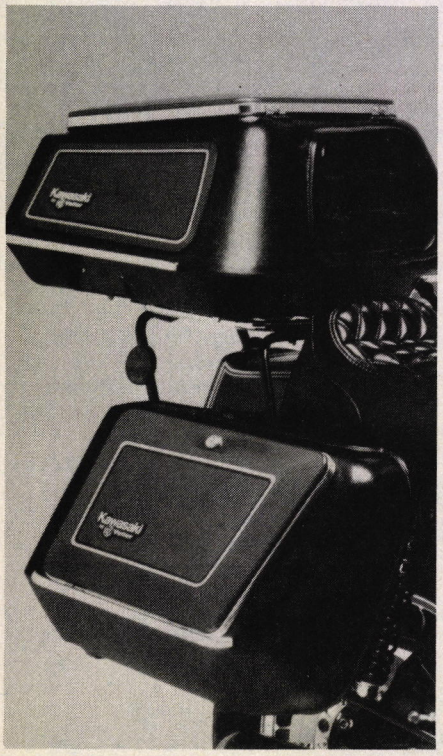
For a list of authorized BMW Dealers where you can see the 1981 BMWs and for a complete, illustrated guide to them, write Dept. 1-2, BMW of North America Inc., Norwood, N.J. 07648.

CM400E through CB650C/S. Required hardware is a mount set at about $44.95. Options are bag liners at $26.50, and guard rails (shown) at $45.

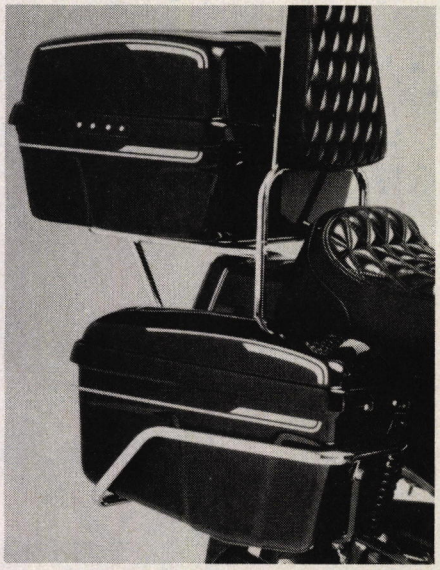


Kawasaki Motors Corp.
P.O. Box 11447
Santa Ana, CA 92711
(714) 835-7000
Price: Kawasaki by Vetter—
Travel Trunk $209.00
Saddlebags 278.00 pr
Kawasaki System—
Travel Trunk $94.50
Saddlebags 154.95 pr

Kawasaki offers a Vetter system for their large-displacement touring bikes, constructed of ABS plastic. The locking Tail Trunk features built-in lights and back rest, and is isolated from vibration with floating mounts. The quick-detach, lift-off bags also rest on floating mounts, and a bracket is required for installation at $81.80. Both trunk and bags come in black with color matched doors, or color matched complete for $14 (trunk) and $27 (bags.)



Kawasaki's own system is constructed of double-wall ABS, and features built-in turnsignals and running lights, weathertight locking lids and enclosed wiring. The trunk will hold two standard helmets. Available either in Universal black or custom color matched.



Krauser U.S.A.
6909 SW 216th
Lynnwood, WA 98036
(800) 426-6779
Price: Star Saddlebags $299.95 pr (shown)
Starlet Saddlebags 165.00 pr

THE STAR saddlebags are constructed of ABS plastic that is injection-molded under extreme pressure. A one-piece ABS hinge and a rubber Q-ring lid seal provide weatherproofing. The bags have a 40-liter capacity and dimensions of 20½"L, 15½"H, 10"W. They are completely detachable and feature zinc die-cast locks and latches, with a chrome-plated brass key cyliner. One key operates both the lid lock and attachment lock. Available in black only; brackets and hardware are $85 extra.

The STARLET bags (not shown) include many of the same design features, but are medium-volume, medium-priced units. Available in white or black. Krauser also offers a hard-shell top case, soft top case and inner saddlebag liners.

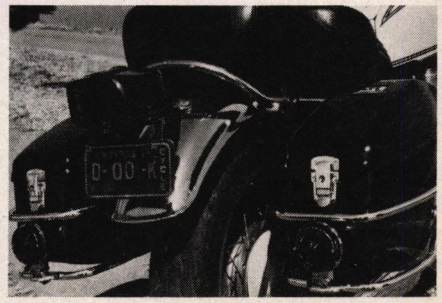
Kutter
Howe Engineered Sales Co.
P.O. Box 642
Cedar Falls, IA 50613
(319) 236-9606
Price: Travel Trunk $66.35 to 121.45
Saddlebags 244.95 pr

Kutter offers the PACKER travel trunk in mini, standard and maxi sizes. Constructed of ABS cycolac plastic, the Maxi-Packer has room enough for two helmes. Features include side opening latch and a Kargo Kit vinyl interior bag which lifts out with top-stitched handles. Available in black or white.

The Kutter saddlebags fit most large touring bikes and are made of ABS plastic. They come either black or white with running lights, turnsignals and taillights. Options include chrome guards, pinstriping and color match to most popular bikes.

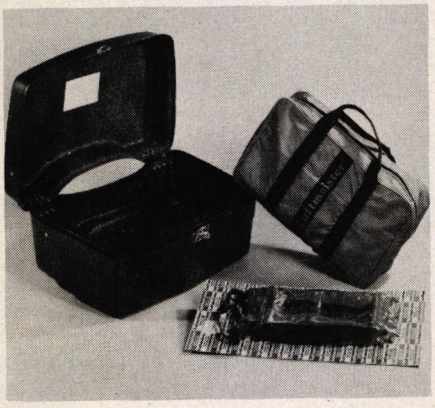
Land Tool Company
650 E. Gilbert St.
Wichita, KS 67211
(316) 265-5665
Price: $220.00 pr

SPACE MASTER saddlebags are constructed of high-impact-resistant plastic with hinged lids and a rear lock. Capacity is sufficient for one full-face helmet in the fully-lined compartment. Chrome steel guard rails and shock-mounted stop and turnsignal lights are standard. Dimensions are 17½"L, 12½"H, 10½"W. Mounts to any bike; colors are black or white; color matching extra.



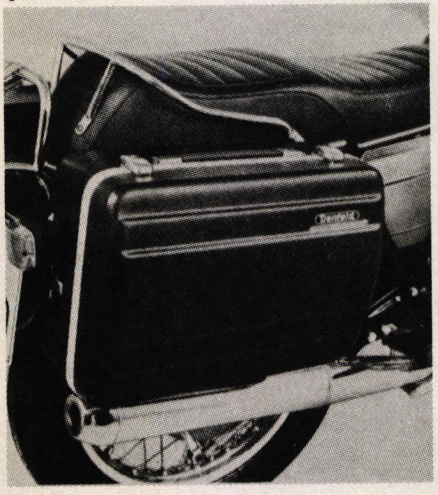
Luftmeister Inc.
135 E. Stanley St.
Compton, CA 90224
(213) 638-6192
Price: Travel Trunk $145.20 to 163.35
Travel Bag 39.50

The BMW TRUNK by Luftmeister is a pressure-injected fiberglass unit that is hand-pinstriped, and painted to match BMW factory colors. Price varies depending on color. Dimensions are 22"L, 9"H, 15"W. A chrome plated key locking system comes standard. Supplied with all necessary mounting hardware, adapts to most popular luggage racks. The fabric Travel Bag fits inside the trunk and features handy straps for carry-off capability.



Michael Bondy Associates
P.O. Box 123
Haworth, NJ 07641
(201) 385-2552
Price: Saddlebags $299.00 pr
Leather Bags 299.00 pr

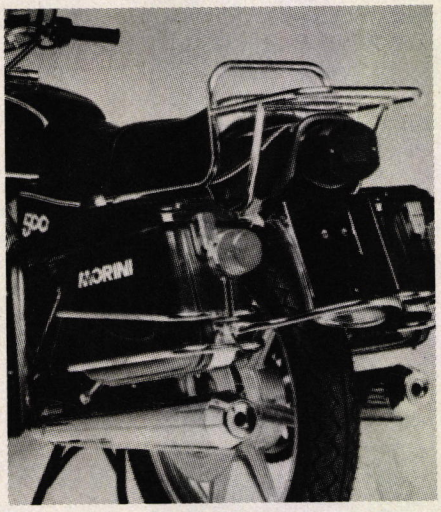
DENFELD BMW bags are molded of high-impact thermoplastic with a lightweight extruded aluminum frame. The bags are detachable, with retractable hand grips and lockable clasps in a suitcase style. The bags are internally braced for strength and are large enough to carry a full-face helmet. A rubber seal provides weatherproofing. A Denfeld mounting rack ($62 to 92.50) is required.



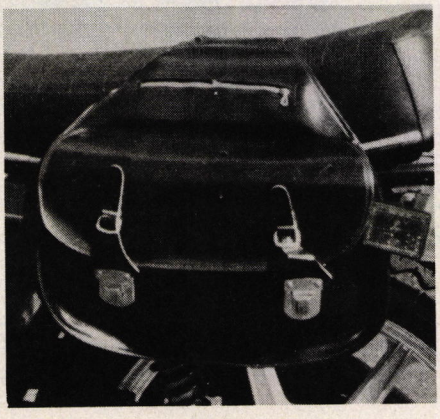
The Leather Bags are made for late-model BMW's and fit on the same rack as the Denfelds. Made of 4mm-thick leather, with heavy stitching and bent edges, in a scuff-resistant black finish.

Moto Morini Herdan Crop.
Route 61
Port Clinton, PA 19549
(215) 562-3155
Price: Saddlebags $129.95 pr
Soft Bags 44.95 pr

The MOTO MORINI saddlebags are constructed of high-impact plastic with vinyl inner liners. An extra bead around the bag top provides weatherproofing, and the quick-release lid comes with two locking latches. Dimensions are 14"L, 12"H, 6"W. Available in black only; comes complete with mounting brackets and bag guards.



The soft saddlebags are made of smooth-grain leatherette with a perforated cushion liner and quick-release lids. Two extra side pockets provide space for small items, and fully adjustable seat- and side-safety straps come standard. Mounts to any bike.

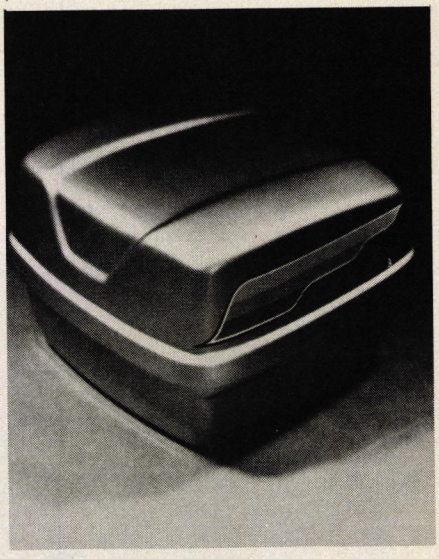


Motorcycle Accessories West
7367 Greenbush Ave.
Noth Hollywood, CA 91605
(213) 983-0218
Price: $99.95 pr

SADDLETOTES are a nylon reinforced portable set of saddlebags, large enough to hold a full-face helmet. The laminated heavy-duty nylon is water repellant, with a carrying capacity of 20 lbs. Quick-disconnect buckles and a bottom reinforcing panel are standard. Dimensions are 15"L, 12"H, 9"W; mounts to any bike.

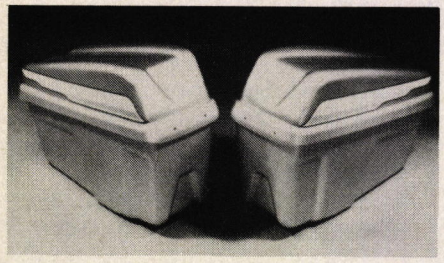
Ocelot Engineering
895 W. Mill St.
San Bernardino, CA 92410
(714) 884-0484
Price: Travel Trunk $89.95
Saddlebags 189.95 pr

The OCELOT trunk is manufactured from a high-strength lightweight plastic. The hinged lid is lockable and weatherproof. Interior space is sufficient for two full-face helmets, and the trunk mounts to most popular luggage racks. Available in black or white. Options include (not shown) side chrome rails at $23.95, a top rack at $23.95 and a back rest at $15.95.



The saddlebags are also lightweight plastic, and feature weatherproof seals and lockable, removable lids. Rear directional lights

come standard. Colors are black or white; supplied with mounting hardware. Options are side chrome rails at $16.95.

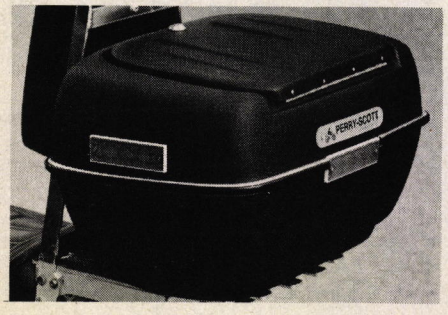


Olympic Enterprise Co., Ltd.
1537 Awlsbury Way
Fullerton, CA 92633
Price: $206.00 pr

Olympic's unique nylon/hardshell saddlebags are constructed of double-stitched nylon and vinyl in either silver or black colors. A locking quick-disconnect system secures the set to almost any bike. By opening or closing a zipper, the interior luggage space can be increased or decreased by up to 25 percent. Matching tank and trunk bags are also available (not shown), and saddlebag brackets are extra.

Perry-Scott Products
3631 Interlake Ave. North
Seattle, WA 98103
(206) 633-0404
Price: Travel Trunk $79.95
Saddlebags 239.95 pr

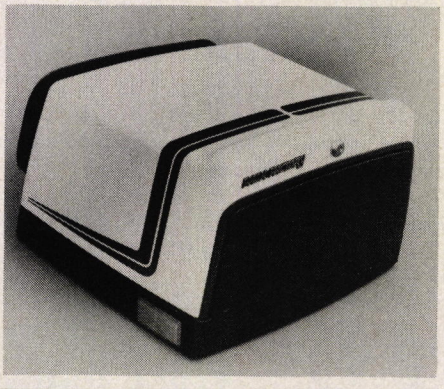
The DELUXE trunk by Perry-Scott is constructed of high density polyethylene and features nickel-plated brass rivets, a cam-type lock and aluminum-hinged top. Available colors are black or white, and side reflectors are standard. Fits most popular luggage racks, and comes with all necessary mounting hardware. Dimensions are 13"L, 11½"H, 18"W.



The quick-release saddlebags are also high density polyethylene units,with cam locks and aluminum piano-type hinges. Dimensions are 20"L, 12"H, 11"W. Colors are black or white; side reflectors are standard; supplied with mounting hardware, Universal mounting bracket $49.95 extra.

Rack Factory
729 W. Anaheim St.
Long Beach, CA 90813
(213) 435-3429
Price: $148.95

The TRAVEL CASE is constructed of rotationally-molded polyethylene with a vacuum-formed ABS plastic lid. The lid has a unique clamshell design for weatherproofing, and moves on stainless steel hinges. Side reflectors and a back rest are standard features, and available lid colors are black, white or silver. Made to mount on Rack Factory racks (from $110.95 to 248.00), or adaptable to most others. A quick-release mechanism is available only for Rack Factory racks at $29.95.

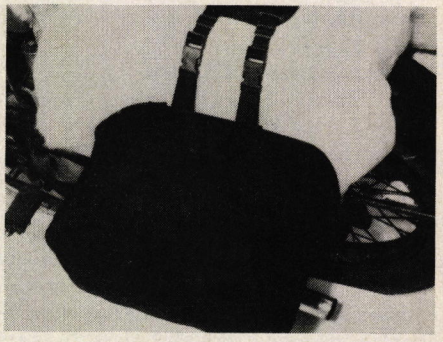


Rev-Pac
P.O. Box 175
New Cuyama, CA 93254
(805) 766-2454
Price: $79.00

SADDLE PACKS are constructed of PVC waterproof nylon with a spring frame to hold the top open and seal it closed when desired. The connecting belts have D-ring closures to allow the packs to ride high on any bike, and velcro bottom strips help anchor packs to the frame. Quick-release buckles are standard. Dimensions are 12"L, 14"H, 7"W. Available in eight solid colors.

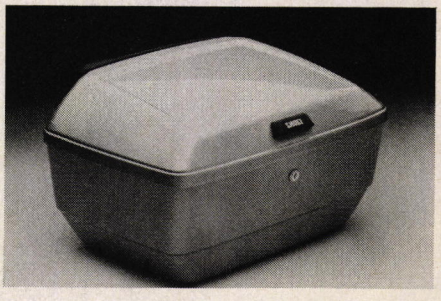
Second Story Leather Shop
30 N. Maple St.
Florence MA 01060
(413) 586-6334
Price: $79.00 pr

The ULTIMATE saddlebags are made of cordura nylon, with brass zippers and a ¼-inch plasticized rubber backing to resist wear. They are double-stitched at all points of stress and have a carrying capacity of 2600 cu. in. The tie-downs will fit over or under the seat and adjust to most bikes; quick-release buckles come standard.



Shoei
1717 Pontius Ave.
Los Angeles, CA 90025
(213) 477-6051
Price: Travel Trunk $151.95
Saddlebags 499.00 pr

Shoei's SB-22 trunk is constructed of pressure-molded fiberglass and comes complete with all mounting hardware. It is adaptable to most popular luggage racks. Interior capacity is sufficient to hold a full-face helmet, and a



padded back rest comes standard. Dimensions are 15½"L, 11¼"H, 20¼"W. Colors are black, white or silver.

The SB-27 saddlebags are designed as companions to the trunk, and are also constructed of pressure-molded fiberglass. The price includes all mounting brackets and hardware, and each bag will hold a full-face helmet. Dimensions are 17½"L, 15½"H, 12½"W; colors are black, white or silver.

The Leatherworks
350 Coogan Way
El Cajon, CA 92020
(714) 442-9651

Price: Leather Bags $127.05 to 162.25 pr
Soft Leather Bags 191.95 pr

TL's hard leather saddlebags are hand crafted from quality Latigo leather, hand stained and saddlestitched for strength, with heavy-duty brass rivets at all stress points. They are available in Medium size (12"L,

10"H, 4"W) or Large (14"L, 12½"H, 7"W.) The bags come plain, or with motorcycle brand name "deep branded" into the leather, or with solid brass plates riveted into the bag. Colors are black or brown. TL's soft bags are all-leather with four pockets per side (one with brass zipper.) Other features are brass grommets, leather tie-downs and double-sided cross strap. Dimensions are 13"L, 16"H, 7"W. Colors are black or brown.

Touring Accessories of America
169 E. Liberty Ave.
Anaheim, CA 92801
(714) 738-8687

Price: Travel Trunk $139.95
Saddlebags 170.76 to 175.77 pr

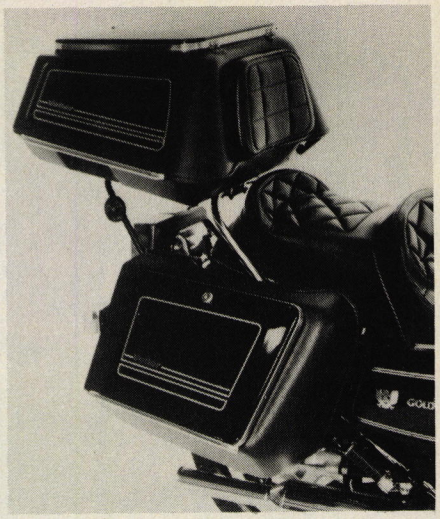
TAA has a new touring system designed for the Honda CB900 Custom. Construction is of high density polyethylene, with high gloss lids and panels. Dimensions are 18½"L, 12½"H, 19"W. Colors are black, white or color match blue or burgundy. Options (shown) are chrome rails at $39.95.

TAA's saddlebags complement the CB900 trunk and are also made of polyethylene. They come in two sizes, Regular or Wide, and two styles, Cutaway for the stock mufflers or Standard for aftermarket exhausts. Dimension of the Wide bags are 21"L, 12½"H, 10"W. Hardware includes the TBMB system at $70.72 extra, or the TBMB plus chrome guard rails at $197.50.

Vetter Corporation
Rantoul, IL 61866
(217) 893-9300

Price: Travel Trunk $209.00
Saddlebags 287.30
Hardware 72.50

Vetter's TAIL TRUNK is constructed of rotationally molded polystyrene with ABS plastic sidepanels and door. Exterior is black pebble grain with chrome Texas Trim, and the panels and doors may be color matched to most popular bikes for about $16 extra. Standard features include locking lid, side reflectors, running lights and padded back rest. Carrying capacity is 2800 cu. in., enough to hold a full-face helmet. Standard colors are black, white, silver or primer.



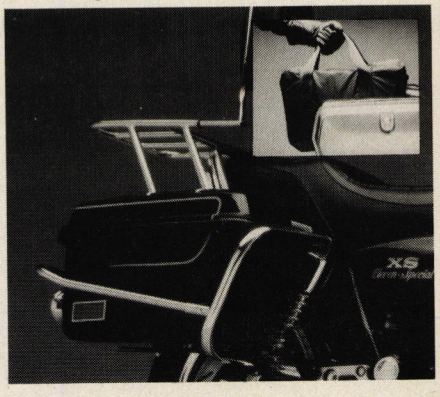
Vetter's saddlebags come in two sizes, Standard and Sport Bags (designed for bikes with upswept mufflers.) Both bags have the same design features as the Tail Trunk, and complete the Vetter touring system known as THE SET-UP. Standard bags have a capacity of 3600 cu. in., Sport Bags hold about 10 percent less. Both styles, though, will accommodate a full-face helmet. Colors are black, white, silver or primer, or color match for about $30 extra. The bags mount with Vetter's patented Floating Mount System to isolate vibration.

Yamaha Parts Distributors
6555 Katella Ave.
Cypress, CA 90630
(714) 761-7300

Price: Saddlebags $158.95
Soft Liners 21.95
Hardware 74.95 to 179.95

Yamaha offers accessory saddlebags for their XS1100/850/650 Special models. The bags are constructed of injection-molded plastic and feature waterproof locks. All lids open away from the bike for easy access, and the mounting system secures at four points for stability. The chrome guard rails offer protection, and come standard with the mounting system. Color coordinated to the appropriate Yamaha models. Mounting hardware prices vary according to model.

The lift-out liners are made of 400 denier acrylic coated fabric, and feature handles of seatbelt webbing. The zippers are heavy-duty thermoplastic, and the bags fit all Yamaha saddlebags.



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Motorcyclist Magazine

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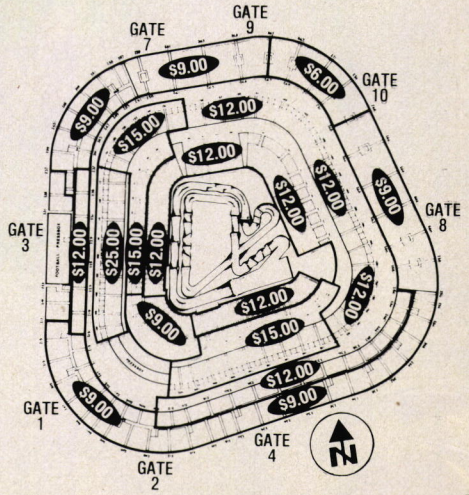

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SPORT LINES

Cycle Guide's True Tales of Race Courses, Dark Horses and Machines at Speed

EDITED BY DAIN GINGERELLI

U.S. ISDT Woes

Results are fickle in France, but will we DNF Italy?

PHOTOGRAPHY © 1981 BRAD ZIMMERMAN

• "The point at which we will become equally competitive at ISDT is when we pay our riders and support people full-time, when we choose our team early, *and* when we compete in the European championships in the spring so we can see what they're doing. In short, when we play the same game the Europeans are. Right now, it's not equal."

The speaker was John Morgan, the U.S. Trophy Team Manager at the 55th International Six-Day Trial, in a reflective mood two months after the 1980 ISDT in France. His Trophy Team, along with the U.S. Silver Vase Team, had finished a disappointing 10th place out of the 19 nations competing, and Morgan was understandably vexed.

"The interesting thing," he continued, "is that on the average our DNF rate is lower than the Europeans, and our medal rate is higher. But we tend to lose a lot of points early—our guys don't really get started riding until the third day when they're used to the conditions, and by then it's usually too late for any of the teams to move up."

The ISDT is an anachronism, a throwback to the days when amateur sport meant something, a self-proclaimed "Olympics of Motorcycling," that shares more than an appellation with its older, more distinguished but no-less controversial cousin, The Olympics. Politics are rife at ISDT not the least because the Reliability Trials arm of the FIM, the governing body of all world championship moto-sport, sits as a mere adjunct to the powerful FIM Motocross Committee. That committee, closely allied with the motorcycle manufacturers and inextricably tied to the European member-nations, approves the courses, appoints the Jury and certifies the scores at each annual ISDT.

"Our highest finish in history," said Morgan, "was our First Place Silver Vase Team in 1973. Of course, ISDT that year was held in the U.S., and it was a good trail course. We're better trail riders than the Europeans, and they're better motocrossers and off-road roadracers."

By all accounts, the 55th ISDT in France was held on a fast track. Speeds on most sections were dangerously high, and the "special test" sections at the close of each day were little more than balls-out MX circuits. The course mar-

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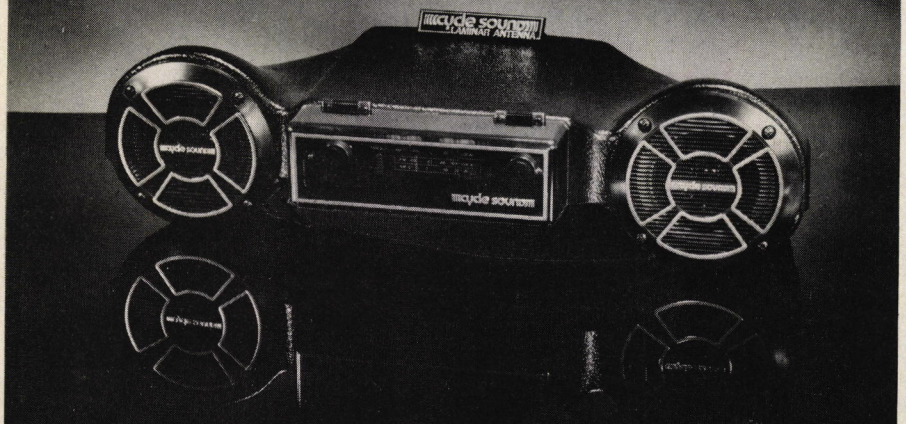

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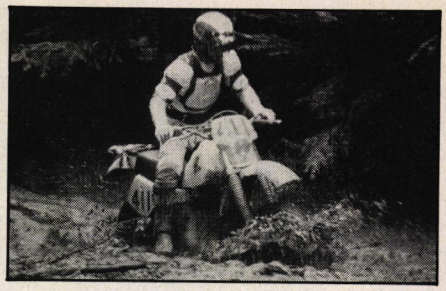

Larry Roeseler takes a French mudpack bath

With rivers like this it can't be Baja.

shals added to the difficulty by overestimating distances between checkpoints, so many riders sped up to the waiting ticket-punchers and found they were so early that their penalty point assessment effectively DNF'd them for the competition. Add to this the normal confusion of managing 400 riders on a 200-mile-per-day enduro course, and it's a wonder that any competitors finished at all. But finish they did, many of them, with 25 U.S. riders (from a team of 39) credibly high in the individual standings.

There are three separate competitions at ISDT. The first, a sort of iron-man recognition, is for lowest point total among all 400 riders, regardless of class. (Guglielmo Andreini of Italy on a 500-SWM took the laurels.) The second is within classes—from 50cc up to 500cc—for medals, with the top 10 percent in each class earning Gold, the next 25 percent earning Sil-

Dick Buleson blitzed chateau country

Seven straight Golds for the IDST vet.

ver, and 60 percent of the remainder earning Bronze. The third is for national pride, each country fielding two different teams (World Trophy and Silver Vase) with different riders and different bike-class rules for each team.

Among U.S. individualists, Larry Roeseler took Top American honors for the second year in a row, finishing with a Gold medal and 6th overall in the 500 class aboard a Yamaha IT465. Roeseler, not surprisingly, is a renowned desert racer used to "off-road roadracing," but he still rates his finish on Day Six as "faster than Baja." In all, the U.S. contingent earned five Gold, 14 Silver and six Bronze medals, with 14 DNF's among the 39 riders.

But it is the team competition, the national honor concept—and the desperately underfinanced and unprepared U.S. effort—that rankles ISDT regulars like John Morgan. At 43, Morgan is the Enduro/Trials Team manager for U.S. Suzuki, and has long been associated with the enduro scene on the East Coast. In 1977 he convinced his employer to field a national team, and even persuaded Suzuki to mount a three-man effort for the '77 ISDT.

"What I saw then," he says, "was a bunch of little broke camps, everybody fending for themselves. We were a laughingstock, with the Swedes helping our Husky riders, the West Germans gassing up our Maicos. It was pitiful.

"In 1978, through some more help from the manufacturers, we began to work together. But 1979 saw the first time we had most of the

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Finishing early was a no-no that felled many riders.

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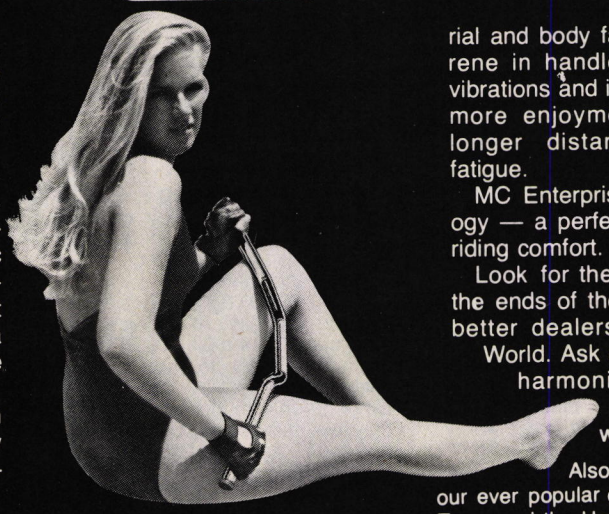

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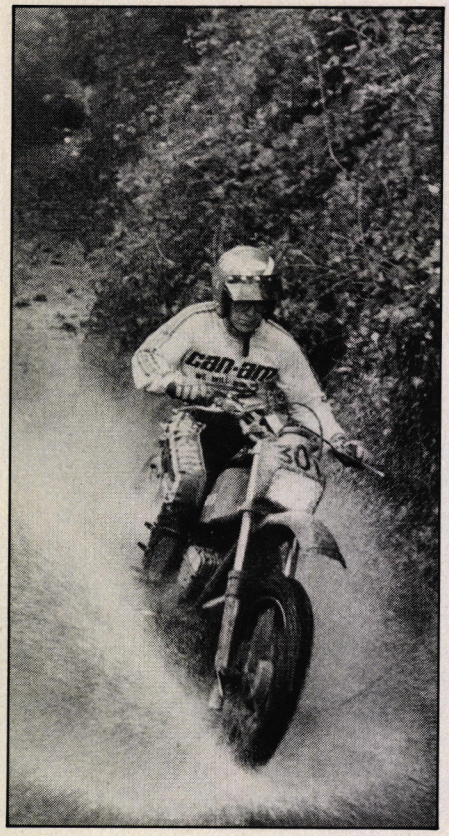

John Martin cools it

Splashing his way to a Silver medal

Mike Melton finished on Gold despite the speeds

He was sorry he left his roadrace leathers at home.

checkpoints covered with an American effort."

In 1980, 10 years after the U.S. first fielded a World Trophy Team, Morgan felt "we finally had a unified support effort." But now he worries that the results, for whatever reasons, could bear bitter fruit.

The AMA, the governing body that sets the qualifying rules for our ISDT competitors, relies on the manufacturers for financial support. Without positive race results—and the attendant publicity—manufacturers are loath to spend money. And the ISDT, amateur though it may seem, requires a lot of money.

A figure? "One million dollars," says Morgan, "per year. I've budgeted it out, and that's what it would take to create a winning effort. But I don't know where to get it."

Where, indeed. The manufacturers could hardly be expected to pony up equal shares for what promised, if all went well, to be a Team

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If Ray Cosgrove only knew

Past these rocks speeds reached 90 mph.

America coup. And the AMA, which runs the ISDT program out of the Amateur Activities office, doesn't have that kind of economic clout.

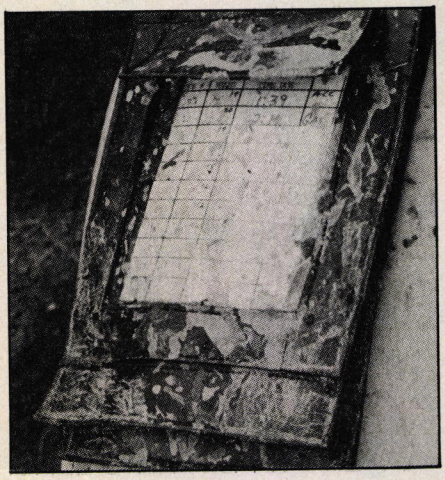
The answer, it would appear, lies in attracting outside sponsorship, the consistent likes of which has only been visited on the AMA once in the past decade, for the Camel/Winston Pro Series. The likelihood of a second sponsorship coming to the enduro trail is remote given the difficulty of televising off-road events, and therefore the difficulty in attracting a widespread audience for a sponsor's product.

A further sour note is the "indication that some bike manufacturers are withdrawing their bucks this season," according to Morgan. "They've decided it just doesn't pay, and we might be back to square One when the '81 ISDT in Italy comes up.

"But I see such possibilities in the sport . . . People sometimes ask me why I beat my head against the wall, if it's worth it. I tell them, 'Are the Olympics worth it?' And I think the answer has to be yes.

"You know what ISDT is?" he concludes, "It's not a dedication—it's an obsession."

—Jeff Burtt



Reading route cards is part of the game

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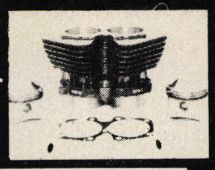

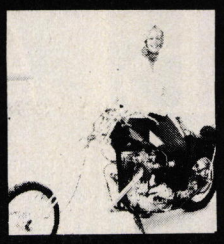

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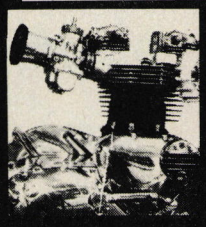

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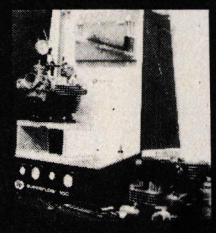

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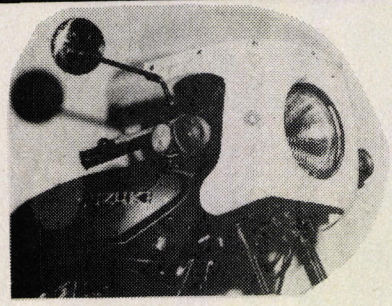

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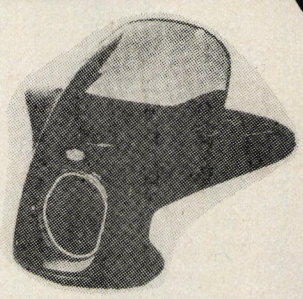

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**Source: Cycle Guide.*

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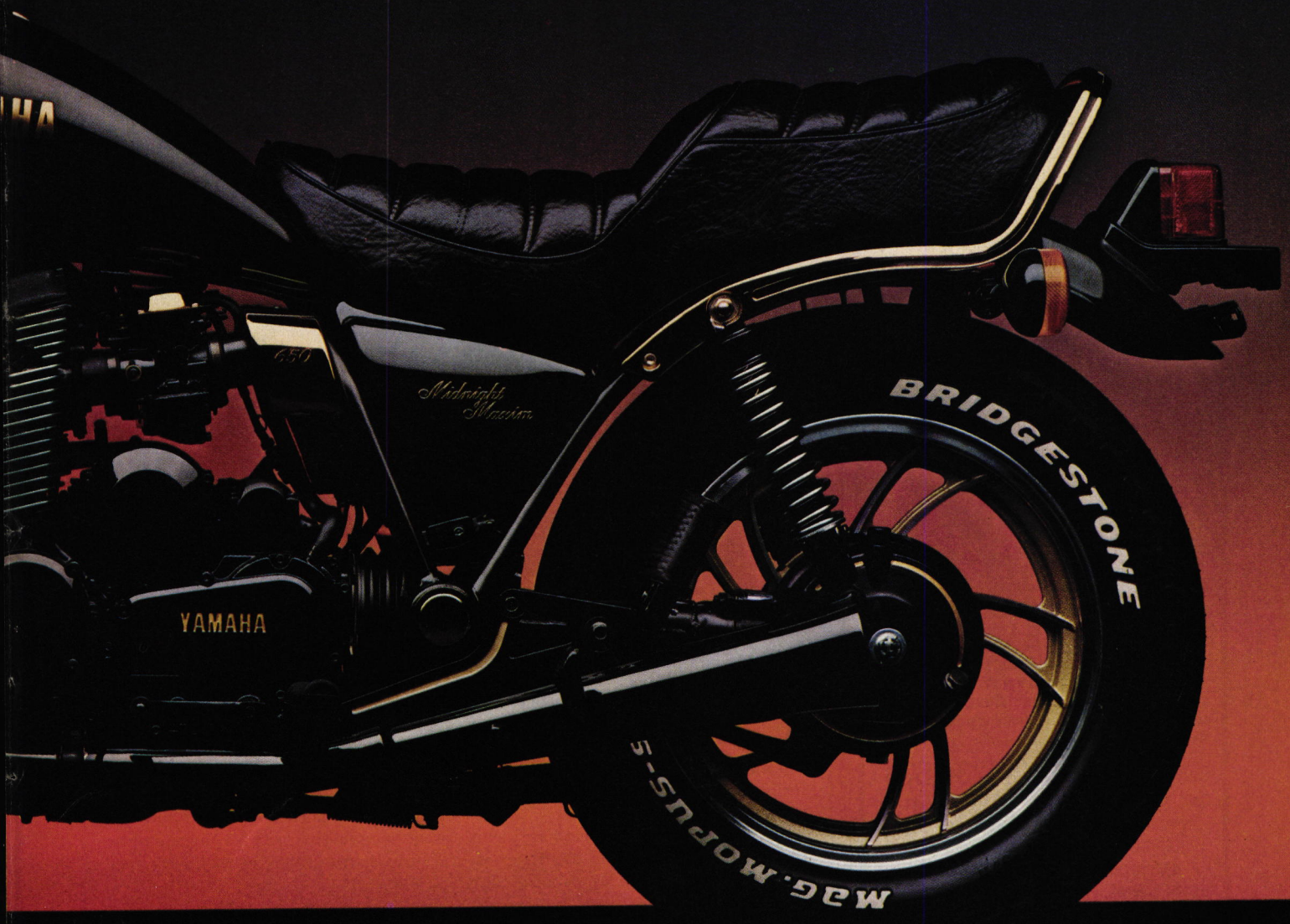

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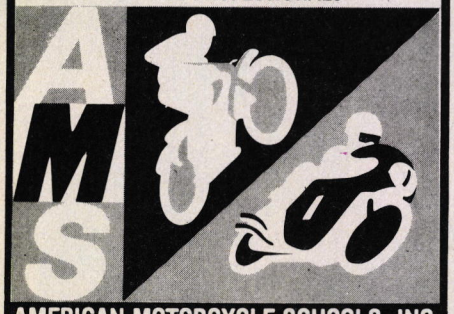

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Minibike Nationals

Ponca City is a big meet for small racers

• Minibikes can bust berms and vault jumps just like real motocrossers. If you need proof, just go to Ponca City, Oklahoma next August and see for yourself.

Ponca City is plugged in the belly of America, and it's here that many motocross racers cut the amateur's umbilical cord and emerge into professional racing. For, you see, Ponca City is the sight of the National Motorsport Association's Minibike Grand National Championship.

While the minis have been overlooked by most major sanctioning organizations, the NMA devotes itself solely to promoting pint-size racers, as evidenced by over 1400 entries for last year's event. Small bike racing really is big time.

In the interest of junior-league racing, there's an age limit for competitors, too—when you're old enough to vote it's time to think about hanging up the minibike duds, for 18-years-old marks the expiration date on all NMA licenses.

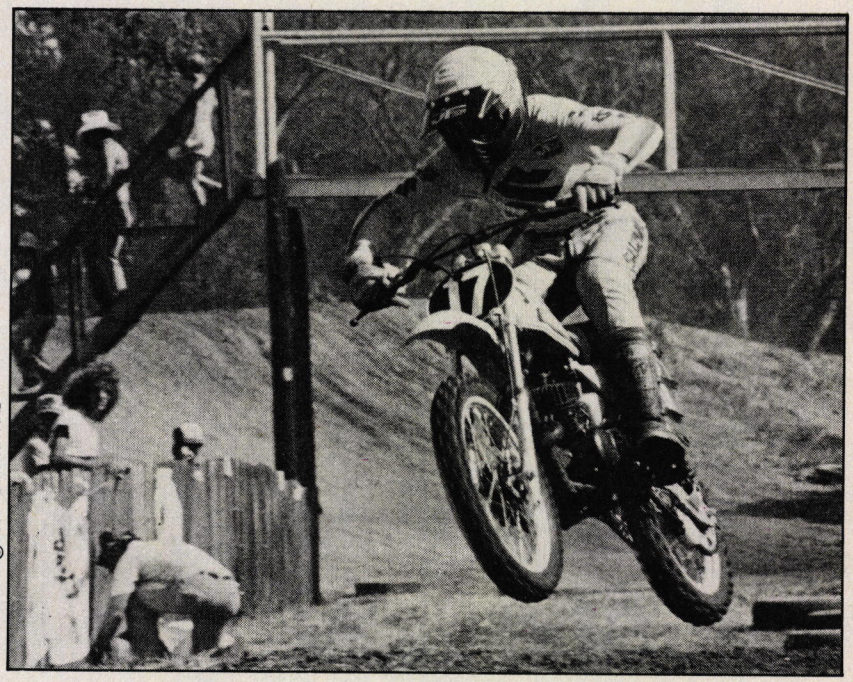
Not all former NMA competitors submit to a life of checkers and shuffleboard, though. A review of an AMA national 125cc field reads like a Ponca City alumni journal: three-time 125cc AMA champ, Broc Glover, Suzuki's Brian Myerscough and Kawasaki hot-shoe Jeff Ward were all minibike sensations in their formative racing years. And the 1979 Ponca City champ, Eric Kehoe, has benefited from Yamaha support and developed into a top one-two-five club racer in Southern California.

Factory support is overspilling into the mini-nationals, too. Suzuki sent George Holland to Ponca City last year with a van-load of RMs for his three races. The investment paid off as the California youngster won the 100, 125 and 250 classes.

Kawasaki used the northern Oklahoma town as a springboard to introduce its new KX80 Uni-Trak racer, too. And the Green Machine was willing to shovel out the green stuff—$1000 worth of contingencies—to Ponca City class winners.

Interest in the minibike market appears to be growing even more. As Yamaha competition services director Ed Schiedler points out, "Miniracers may not all be the stars of the future, but they certainly are the motorcycle purchasers of the future. We want to establish loyalty for Yamaha when they are young, so they'll keep buying from us later."

But most of the Ponca City competitors didn't worry about where the money was coming from on race day. A visual scan of the infield bore witness to the fleet of Win-



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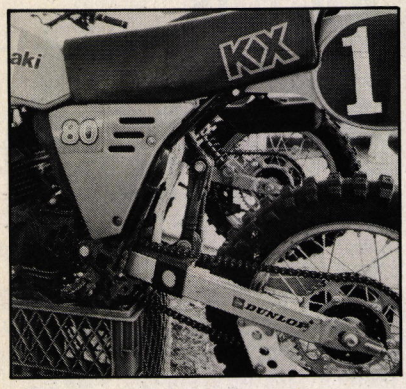
Mini-Myerscough clone at work

Preparing for the future.



Hi-tech KX80 Uni-Trak

Longer legs for short-legged riders.

nebagos and campers that served as mobile race headquarters by the parents. The little league-parent syndrome has motored its way into Ponca City pits, and as one parent quipped while her son donned a down-sized full coverage helmet and Scott goggles before hopping on his DG-equipped YZ80, "I don't want to push him, but I help him as much as possible so he can do well."

Jeff Ward's father recalls his son's early NMA days, "I had to mortgage my house to help launch Jeff's career." It sounds strange, planning a person's career before he's old enough to drive, but in Ponca City and other mini-racetracks, that's the basic philosophy adopted by the riders and the parents alike.

But for you aspiring racers over the ripe old age of 18, don't lose heart. Remember, the legendary Maico motocross ace, Adolph Weil, began his Grand Prix racing career at the crusty age of 28. And he didn't even have the financial blessings of his parents.

—Terry Whytal

Incredible shrinking motocross riders

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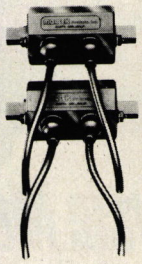

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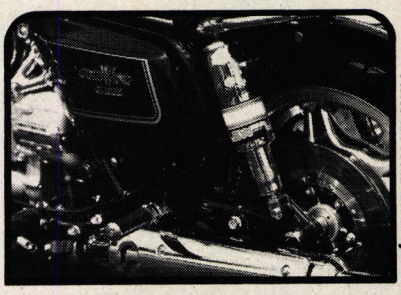

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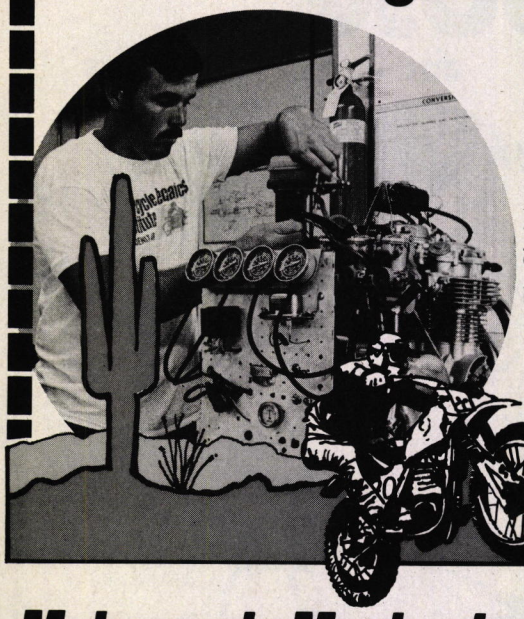

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Pit Bits

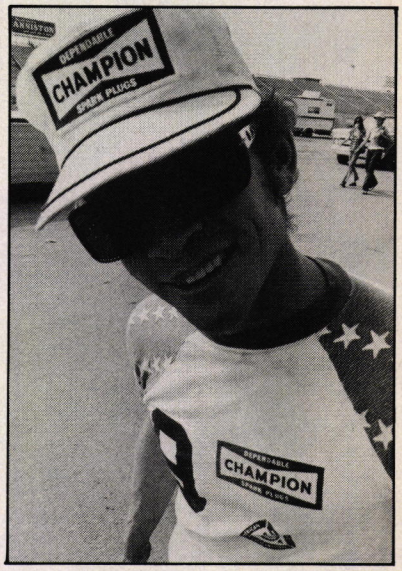
• Rumor has it that Erv **Kanemoto** will tune for Barry Sheene this coming roadrace season. Kanemoto has been left **riderless** since Freddie Spencer tied the knot with Honda for 1981 to compete in AMA Superbike and F1 races. Sheene will ride a Yamaha **TZ500** in world championship Grands Prix.

• There's been some between-seasons RG500 testing at Suzuki's **Ryuyoo** development track in Japan by the Italian GP team. Evidently, Nava-Olio-Fiat No. 1 team rider, Marco Lucchinelli, bettered Randy Mamola's **lap record** at the facility by using 16-inch wheels and a new frame that is lighter than last year's works frame.

• Get ready for **turbocharged** roadracing. The FIM recently gave an affirmative nod to turbo engines for this year's 24-hour Bol d'Or. The **FIM** also agreed to allow turbo engines in all forms of roadracing beginning with the 1984 season. It looks like Honda will get its **hot-air** wish, but three years later to allow other marques to catch up.

• Another Kanemoto-tuned ex-rider, and former AMA champ, **Gary Nixon** pulled himself out of retirement briefly this winter to compete at an indoor **shorttrack** race. Although Old No. 9 didn't score enough points to regain his Expert license, rumor has it he did earn enough dough to kick up his **Social Security** fund, if and when he decides to really call it quits.

• Yamaha's Larry **Roeseler** and Jack **Johnson** won't be thinking about the old folk's home for awhile, although most other Baja racers wish they would. The pair won their third consecutive **Baja 1000,** covering the 660-mile south-of-the-border course in 12 hours, 45 minutes and 13.9 seconds. •



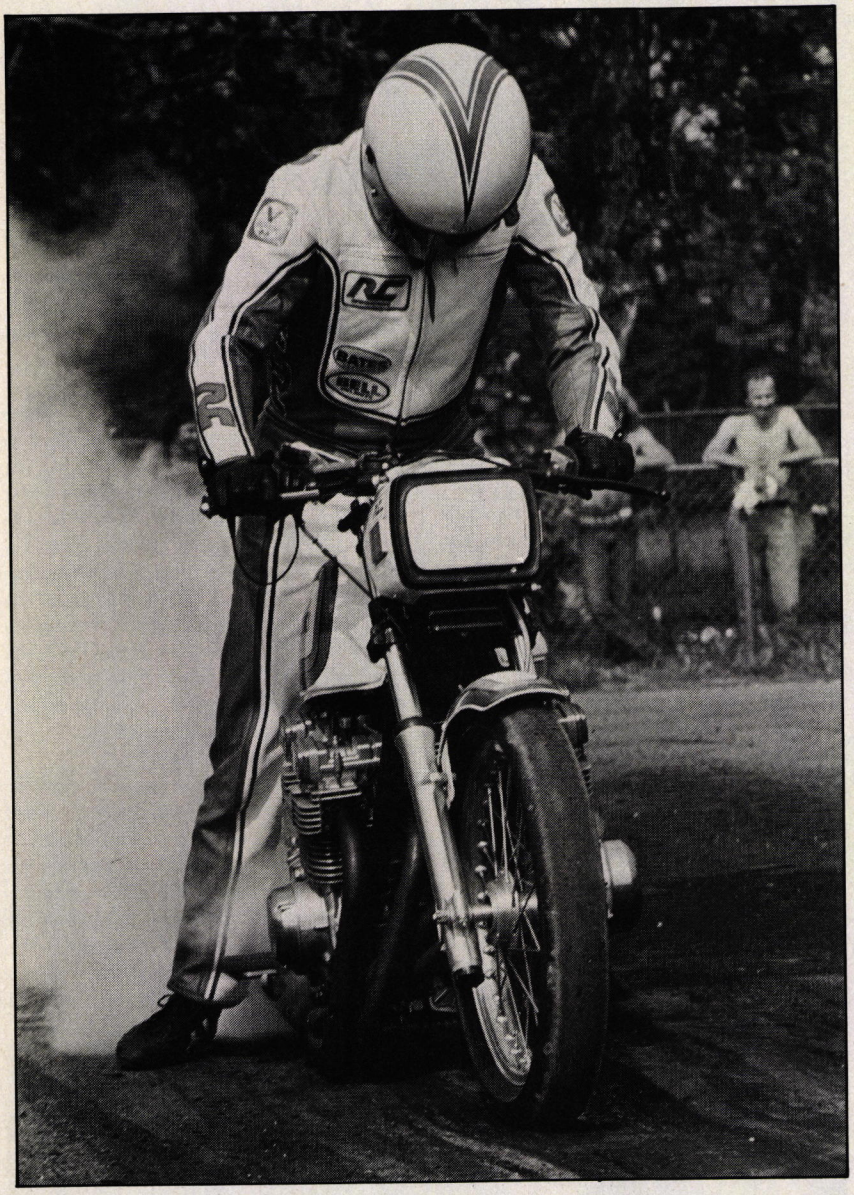
It's Gary Nixon behind the shades

No quitter, indoors or out.

Winners & Losers

Showdown at the Starting Line

He who snoozes, loses.



Bob Carpenter does pre-race burn-out

Rehearsal before the lights come on.

• Winning and losing at the dragstrip are generally dictated by how quickly you shoot out of the gate. When you watch a dragracer come off the starting line, you'd think he had been taught just one thing about motorcycle racing—to twist the right grip as far back as it will go. And you're right about that, the throttle is rolled back against the stop. But there's more to getting off the starting line than just balls-out throttle-twisting. Study a dragracer from the moment he rolls into the staging area until he shuts off after tripping the lights of the speed trap 1386 feet down the strip. Then you'll learn that clocking a quick time takes a measure of seasoned racecraft that you wouldn't expect in a sport that looks as simple as dragracing.

The name of the game is traction, first of all. Basically you want to get as much rear tire rubber onto the track as possible. That means more than just selecting the proper tire size and inflation pressures, though. One secret to maximizing grip is to do a

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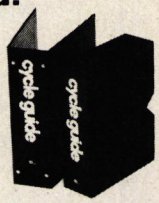

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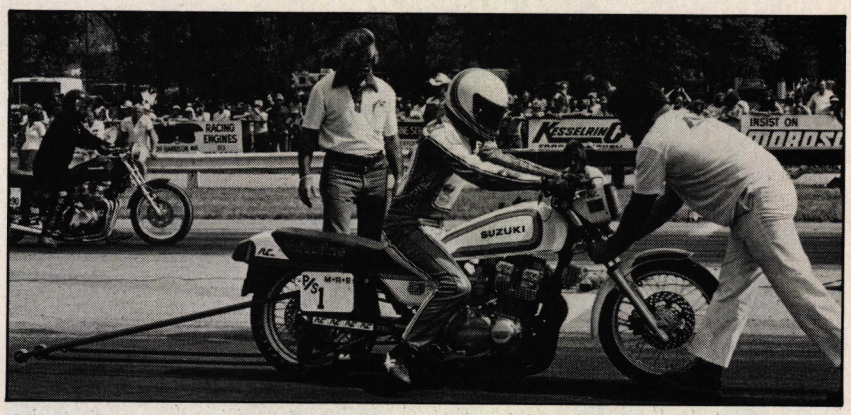


Curtain call—time to go on stage

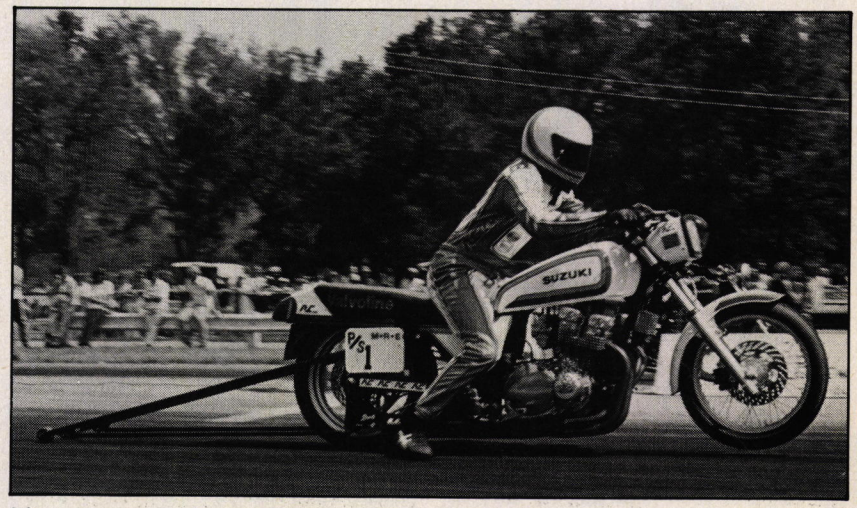
Don't forget your lines, though.

preliminary burn-out to heat up the tire tread and carcass so the rubber becomes tacky and grabs better. Bob Carpenter, a former NMRA Pro Stock record-holder, describes the technique: "I back the rear tire over a pool of water, lock the front brake and drop the clutch, spinning the rear tire. If the tire is new I let it heat more slowly at lower rpm, so the heat will work its way throughout the tire and not just into the tread. You know when a tire is warm because it starts grabbing and the bike leaps forward.

The next few moments are crucial. You have only seconds to prepare to put power to the ground before the rear tire cools, but several more things remain to be done. First, you thrust across the start line in a practice burnout. Although it looks showy and unnecessary, the practice burn-out helps you scout the path you've chosen to leave the start line and allows you to put down some fresh rubber for additional traction. Finally, it's time to stage. Although staging sometimes becomes a psych-game, both racers are supposed to stage at the same time, so neither has the disadvantage of a cooler rear tire or a warmer engine. After both racers stage, tripping the double amber staging lights, the countdown begins.

It's easy to think that all it takes to get away from the line once the Christmas tree's green light comes on is good reflexes. Yet most racers agree that the secret to the hole-shot is anticipation—knowing exactly when the green light will wink on after the two anticipatory amber lights. Says Yamaha TZ700-mounted and DD/Gas record-holder Ron Knapp, "I keep one eye on the tach and one eye on the two amber lights. When the first amber comes on, I roll the rpm up to 11,000. Then I pause as the second light glows, and drop the hammer. You have to anticipate the green light. If you wait for the green, you lose."

For the next second or so, you have to manipulate the throttle and the clutch lever with the precision of a surgeon, balancing the risk of time-wasting wheelspin with that of a bogged engine. If the bike comes out of surgery all right, it kicks back on the wheelie bar and lurches forward. And in the following seconds, you'll soon know if you can stay on the throttle or have to back off



It's a standing ovation performance

More important, an encore awaits.

to keep from veering out of your lane, for with all that horsepower focusing on the rear tire patch, it's hard to keep a bike pointed toward the finish line.

Terry Vance, one of the top Pro Stock riders in the country, describes the seconds following the green light this way, "You have to feed the clutch according to track conditions. It takes experience and a feel for what's happening with the bike. Sometimes you might bounce on the bar and the tire goes up in smoke—but when everything's correct, the tire locks down and you have a good run."

The problems of getting away from the starting line efficiently multiply with horsepower—or in the case of Russ Collins' twin-engine Honda-powered Sorcerer, they multiply with the number of engines. As Collins says, "My double-engine bike is almost too powerful. I roll it out of the gate and *ease* the power on, or the whole tire goes up in smoke. I can't use full power until I shift into the next gear. If I get too much wheelspin, the bike tries to go sideways. It weighs so much that I can't use body-English to straighten it out. I actually jump as hard as I can onto the footpeg opposite the direction of the slide and hope she'll come back in line. Sometimes all I can do is shut off."

Most riders don't have to contend with as much horsepower as Collins, so they are able to keep the bike pointed down the lane just by leaning to one side or the other. As Carpenter calmly puts it, "You steer with your body because the front tire is off the ground. If you get out of shape, you lean off to keep it headed in the right direction. Usually I just keep on the gas and the bike straightens out in third gear."

At this point in your run, the starting line drama is over and you concentrate on tucking in to minimize wind resistance and on pushing the air-shift button on the left hand grip to change gears. The ride climaxes after you trigger the first set of lights, beginning the timing of your trap speed, trip the second pair of lights 66 feet farther that determine your elapsed time and cross the third pair of lights that end the timing of your trap speed. Then the ride is over. But you can't afford to stop thinking. If you sit up into the windstream suddenly, you risk being blown off the back of the bike or at least creating a high-speed wobble. So instead you brake gradually during the 1500 feet of shut-down space leading to the return road.

From beginning to end, a run takes only about two minutes, of which less than nine seconds actually are in competition. And there's a lot more than good reflexes and strong engines involved. Sure, it's not very long, but as Russ Collins says, "It's the most fun you can have with your clothes on." Especially when you're the first bike through the traps. —*Terry Whital*

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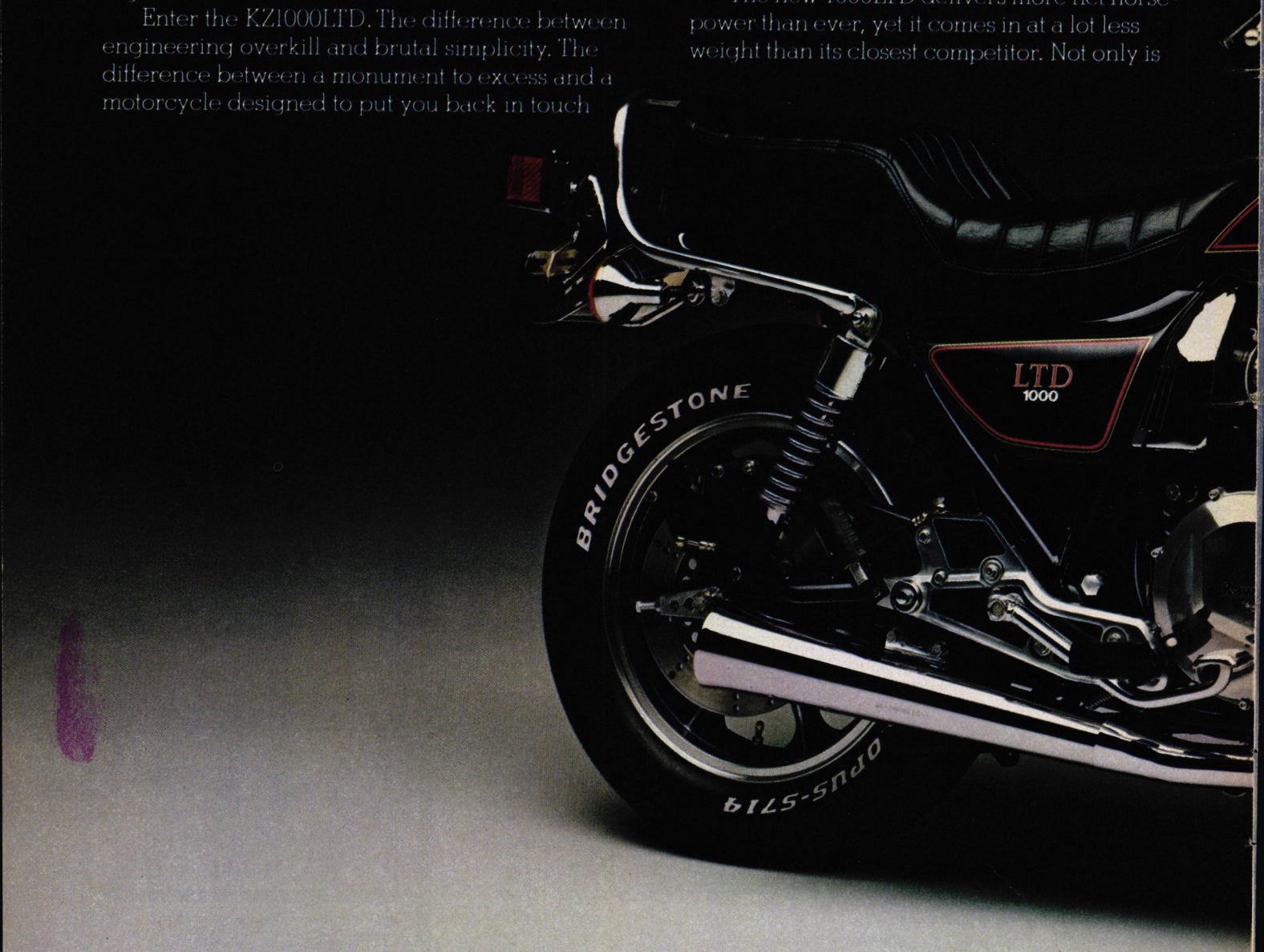

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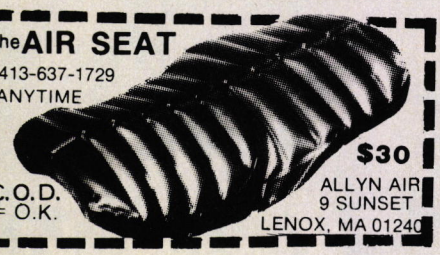
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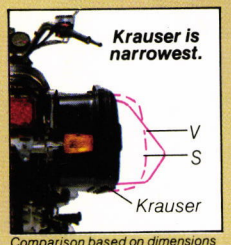

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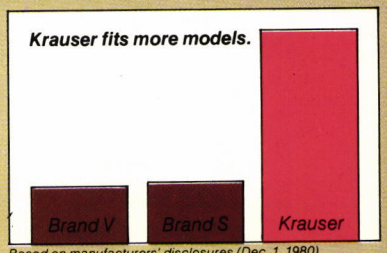

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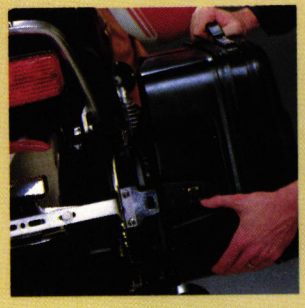

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